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EMOTIONAL DISEASES

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A TREATISE

ON

EMOTIONAL DISORDERS

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SYMPATHETIC SYSTEM OF NERVES.

BY

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PREFACE.

A CONVICTION that much of the mental suffering around us is due to disordered conditions of those parts of the body which are closely related to the ganglionic system of nerves, has emboldened me to write a Treatise containing many familiar observations on a subject which has been freely discussed and fully acknowledged by both the public and the Medical Profession.

The truth is, that we are all familiar with the disorders which accompany disturbed conditions of the mind, but the mechanism by which this disturbance is brought about is too slightly apprehended, and too often only disguised by a *name* which explains nothing of the nature of the disease.

Seeing that it is this class of disorders which supplies the charlatan with fit patients to work upon, and that their gloomy fears and alarm give him ample scope for the most exaggerated statements, and for the use of treatment which too often only protracts suffering, it is hoped that a full exposition of their

ailments will protect these sufferers from imposition, and direct them to a rational source of relief.

The subject is vast and deep—too much so for the scope of a small work, or the experience of one person. I expect, however, that a correct line of investigation has been followed, and that by abler observers than myself, a fuller exposition of it will in due time be given by us. Let me, therefore, offer a few remarks explanatory of the object of my Essay, so as to guard the reader *against the idea that a complete review of the relations between the body and the emotions has been attempted.*

What I have sought to establish is,—the relation which exists between the emotions and the viscera through the sympathetic system of nerves.

In doing this, only so much of the physiological relation of these (the emotions and the viscera) has been touched upon as is necessary to a comprehension of the morbid states induced by a disordered condition of the one or the other. And I have only to a very slight extent considered emotion in its effects upon the cerebro-spinal system, having throughout selected those phenomena which tended most to establish the theory that the emotions affect the viscera, and the viscera the emotions through the sympathetic system.

To mark distinctly the line which separates the phenomena which are cerebro-spinal from those which are sympathetic is impossible. As, however, some broad distinctions can now be drawn between the functions of these two divisions of the nervous system,

the time has arrived when we ought to avail ourselves of this knowledge in studying emotional disorders, so as to determine those conditions of the mind and body which attach themselves to the one or the other system of nerves.

The conditions of the mind, therefore, which belong to the state of the sympathetic system, are set forth in Section II; and as an introduction to the subject, Section I contains an account of the influence of emotion on the body through the sympathetic system.

In speaking of the emotions, I have made no attempt at an elaborate classification such as may be found in the masterly works of Bain; for I could not, after a careful effort, allot to any one of the emotions a series of effects sufficiently special and distinct to enable me to identify it by its action on the body. I have, therefore, indicated the character of the emotions under two heads, the one including generally those which are pleasurable and beneficial in their effects, the other including those which are disagreeable and injurious; and I have not, on this account distinguished with much nicety between appetites, desires, conations, emotions, passions, &c., each of these being held to be a variety of that flow of nervous force which is continually streaming through the visceral regions of the body.

I have throughout used terms expressive of the emotions in the meaning we attach to them in every day life, and I have done this that I might appeal to my reader's common-sense and experience, at the risk of being criticised by the educated psychologist.

I must, however, cease to make excuses for the imperfections of my work, and leave others to pronounce upon its utility and the validity of the views advanced in it; feeling sure that I have written upon a subject of great importance in its bearing upon the happiness and well-being of my fellow-creature.

To Dr. Crichton Browne, of the Wakefield Asylum, I owe much for the kind assistance he has afforded me in investigating this subject.

EMOTIONAL DISEASES.

SECTION I.

THE EFFECTS OF EMOTION ON THE BODY.

INTRODUCTION.

For convenience of delineation, and as a basis for investigation, it may be well to divide this subject into two Sections.

Section I will include the consideration of the emotions, appetites, and passions, with the effects produced by these upon the economy.

Section II will include the consideration of those diseases which are accompanied by derangement of that equilibrium of emotion, which goes far to make up the happy, sound, and healthy mind.

In science, and especially in the science of Medicine we are obliged, in making advances, to reason from the known to the unknown, to discover the facts which are hidden from us by letting the light of acquired knowledge shine upon them. In those two sister sciences, Physiology and Pathology, this process is most useful; they mutually help each other; for that which occurs in health often helps us to understand that which is occurring in disease, and the obscurities of physiological action are themselves not unfrequently cleared away by the revelations of Pathology. It is right, therefore, in interpreting the symptoms of an obscure disease, to throw on them all

the light of our knowledge of the physiological action of the parts or organs involved.

As a rule, we account for the disordered action of an organ by the alteration in its structure, which may be discovered after death; hitherto, in but few cases, have we inferred the existence of diseased structure from the presence of disordered functions *only, i. e.*, in cases where the most careful and minute dissections have failed to discover alterations of structure. As all action, however, does immediately depend on structure, disturbed function may be taken as direct evidence of disordered structural arrangement: consequently we shall presume in this article to infer the existence of disease, (*i. e.*, structural change), when we observe the functions of an organ to be so far disturbed as to give rise to symptoms. In this way we shall often be led to conclude that the sympathetic nervous system is at fault, when we observe its functions to be disturbed, notwithstanding the absence of observed structural change in its chief ganglionic centres. I might say that in some other diseases of the nervous system the same process of reasoning is pursued. In many cases of insanity, for instance, evidence of structural change is wanting; yet who doubts the implication of the brain in the disease? In epilepsy, whose cerebro-spinal origin no one doubts, are there not many cases where visible alteration of structure does not exist? Let us hope that researches with the aid of the microscope and chemical re-agents will, at no distant day, reveal structural changes in the sympathetic ganglia to

account for the symptoms which we now ascribe to their disordered action. We do not here include those cases of disordered action of the ganglia which are solely dependent on an eccentric irritant exciting these centres to increased action, and thus inducing sympathetic action in distant parts: in such cases the excitement in a ganglion must as yet be looked upon as dynamical.

As the theme of our remarks is to centre in "Emotion," it may be well to form some clear idea of what is felt in the body when under its influence, and to determine as clearly as possible the particular part or region to which the sensation accompanying emotion is referred. It is of course difficult, if not impossible, to define the exact nature of emotion; but this is unnecessary, as every one is perfectly familiar in his own consciousness with what is meant by the word, both in its general sense, and in the special application of it to the different varieties of emotion. It is more important to us to know the effects of the emotions on the body, and to ascertain the relation which they bear to other sensations or conditions of the nervous system.

By appealing to our own self-consciousness, by comparing our own experience with that of others, and by referring to the investigations of psychological inquirers (Laycock), we learn that in addition to common peripheral sensations, and in addition to the various sensations of the special senses, there is excited in us by the stronger emotions a sensation which is referred to the visceral regions of the body. In consequence of its connection with the visceral regions,

(the chest, the abdomen, the pelvis) this sensation is closely allied to our appetites and animal propensities; and, on the other hand, it bears a close relation to emotional excitement, forming, as it were, the substratum of the emotional impulses, so that when any strong special emotion is felt, these visceral regions are the parts to which *it*, as a sensation, is referred. So universally is this true, that in all ages terms connecting the emotions with the viscera have been in common use; the heart, the bowels, the reins, have each in turn been the organs in which strong emotion was supposed to exist; indeed their identity has been so fully accepted in the minds of men, that the two, the emotions and the organs, have not unfrequently been spoken of under one term. "The *bowels* of the Apostle yearned after those he loved." "The *heart* was said to feel the pungency of joy or grief," &c.

We would refer especially to the connection between the appetites and the emotions, because we shall have reason to believe that, though distinct in many respects, they are both, to a certain extent, dependent upon the state of the visceral nerves, and are felt chiefly in the ganglionic centres of the sympathetic system.

In the appetites we are conscious of a sensation which instinctively warns us of a want felt by the system at large, the sensation expressive of the want being referred to a particular region in which the organ which specially ministers to the needs of the system in this respect, is seated. Of this nature is the sensation of hunger, and appetite or desire for food,

which has its seat in the region of the stomach. Thirst or hunger for fluids is another appetite expressing itself in sensations referable chiefly to the faucical and pharyngeal mucous membrane.

The natural craving after certain stimuli, the love of light and exercise, the love of variety and of society, and even the irresistible impulse to obtain pure respirable air, the gasping for breath, are all the result of changes conveyed to, or going on in nervous centres, and expressing themselves in various internal visceral sensations which we call emotions or appetites, as the case may be.

The various appetites or lusts connected with sexual organs are also expressed by sensations emphatically connected with the viscera, and having much of their origin in them.

When the body is in perfect health, and when the mind is not pre-occupied or absorbed, these various appetites arise, expressive of systemic wants, and their appearance is necessary to the well being of the subject of them. But even when these special appetites are in abeyance, there still remains a certain consciousness of "ease," "comfort," "good spirits," "enjoyment of life," &c. It is *this* we take to be the *emotional susceptibility* of certain parts of the nervous system, out of which the special emotions may arise, or, as we have said, it is the *substratum* on which they are built.

Having tried to explain what we mean by the terms, we shall take the liberty of referring to this sensation as "emotional sensation," "emotional susceptibility," or "visceral sensation," and in doing so we specially

guard the reader against understanding us to refer to pain, nausea, and other sensations felt in the visceral regions.

As we shall show hereafter, this "*visceral sensation*" may, by having the attention directed away from it, be almost unfelt or entirely forgotten; but it at once reveals itself if the attention be directed to it.

While thus in health our emotional susceptibility exists as a pleasurable consciousness, there can be no doubt that in certain states of the system it becomes changed into a continuous sensation of distress, sinking, and depression, suggesting and encouraging low spirits. We affirm that, apart from any special cause of grief, the nervous centres of the visceral regions—the ganglionic centres—are often, when disordered, the seat of a sensation, an emotional sensation, the very opposite of that pleasurable sensation above described; and this condition affects the spirits for good or evil, so as to determine the "*mood of mind*," a condition which is admitted by all observers to be constantly present, and which, as we have said, varies to any degree of good, bad, high or low spirits, according to the bodily as well as the mental condition of the patient. This nervous condition varies at every turn of life, and possesses all shades of variety and intensity in different individuals. So latent in some as scarcely to be perceptible, it becomes most intensely developed in those of a sanguine or nervous temperament. People, indeed, with highly strung nerves are never thoroughly at rest, because they are so highly susceptible of emotional excitement.

CHAPTER I.

VARIETIES OF EMOTION.

HAVING glanced at the relation which the appetites and the emotions generally bear to the *internal visceral* sensation above described, we can now pass by an easy gradation to the consideration of the special emotions.

The influence of emotion on the body varies according to its kind and intensity: it may therefore be well to classify the emotions according as they produce healthful or baneful effects; remembering at the same time, that as the same emotion, which in one degree is beneficial, may do harm when in excess, this classification is but superficial, and somewhat artificial.

The leading emotions which ordinarily seem to produce a healthy excitement in men, are hope, joy, mirth, gratified affection or ambition, the feelings attendant on success of any kind, what is called peace or contentment of mind, &c., &c. Those, on the other hand, which seem to be depressing and injurious, are the feelings accompanying disappointment, despair, some kinds of anger, general distress of mind, including grief or sorrow at losses of various kinds, fear, timidity, terror, apprehensions, the feeling of inability to cope with difficulties, and the wounded self-conscious-

ness of sensitive persons who consider themselves slighted by their friends. Let it be noted that all these emotions injure as effectually when the cause of them is imaginary or only suspected, as when it is real and certainly present.

In some people, if not in all, emotion in some form or other connects itself with every thought, word, and action; giving at one time zest to existence, at another depressing even the simplest of our powers.

In a well-balanced condition of the mind, under the ordinary conditions of life, this constant play of the emotions can be controlled by the will; and in addition to this, the mental balance may be maintained by the existence of the two kinds of emotion to which we are subject; the sustaining power of the hopes, joys, and successes of life, compensates for the depressing influence of its disappointments and sorrows, and even when the latter are greatly in excess many people are so constituted that they can bear that excess unharmed. But on the other hand there are those in whom volition is weak and whose bodies are ill-fitted to resist the powerful effects of strong emotion; it is in *these* persons that we witness the terrible effects of those disappointments, sorrows, and wounded feelings above alluded to.

We often find that there is a certain relation of disparity between the manifestation of the emotions and the will; where the former is strong, the latter is weak, and *vice versa;* thus it is that, while the man of iron will can control and hide emotional disturbance, the person who is not strong in volitional power, is at the

mercy of his emotions, and even his animal appetites frequently betray him.

It is interesting to observe how the emotions and desires vary with the age of the individual: in the child we observe none of those strong (sexual) desires which characterize the arrival of puberty or adult life, but there is an abundance of those childish tempers and impulses which are diminished or checked in after life. At puberty the bodily development is accompanied by the appearance of new emotional states; and as at this period the will is often weak, there is a predisposition to the appearance of diseases due to uncontrolled emotional excitement (hysteria). In this pre-disposition accompanying the evolution of bodily functions, and in the periodic development of strong emotion or passion in connection with the excitement of the sexual organs in men and animals, we have a strong argument for the influence exercised by the viscera on the emotional system. In adult life the will assumes a stronger position, and as life progresses, each succeeding decade of its history sees man (and woman) passing through various phases and degrees of emotional susceptibility.

In man the emotions are peculiar and distinct from those of woman, and in speaking of the pathological conditions induced by emotions, it will be seen that the abdominal viscera in his case, and the pelvic viscera in her case, are chiefly affected by emotion.

CHAPTER II.

THE EFFECTS OF EMOTION ON THE CEREBRO-SPINAL SYSTEM.

HAVING reviewed the various phases of emotional excitement, which are common to all, in periods of health and disease, the next inquiry which presents itself is concerning the bodily effects produced by these emotions. One general proposition is certain: "*That they do influence the body for good or evil most materially.*"

Among the disorders in which individual peculiarities are observable, those connected with emotion are most conspicuous; so much results from temperament, and temperament is so various, that the sephenomena, the effects of depressing emotions, scarcely ever occur twice exactly alike; there are, however, certain leading features of their action common to all persons, which enable us to draw the outlines of a picture, by a likeness to which they may be recognized.*

In seeking to determine the different ways in which

* The most philosophical plan of dealing with the succeeding part of our subject would be to classify the emotions, and then to trace the effects or action of each of the leading emotions throughout the body; but, as before explained, our power to distinguish the effects or action of one kind of emotion from that of allied emotions, is too small to admit of the attempt. Although we cannot allot to each emotion a certain definite action by which it may be distinguished from other emotions, I firmly believe that such a distinction

emotional excitement may affect the body, we propose to discuss separately its effects upon the two great divisions of the nervous system, the *cerebro-spinal* and the *sympathetic.* We take as our evidence, that these systems of nerves are affected. 1st. Our anatomical knowledge of the nervous supply to the part or organ affected. 2nd. The kind of effects produced on these parts—ascribing those which are connected with general nutrition, chemical change, temperature, vascularity and secretion, chiefly to the sympathetic system, or else to that part of the cerebro-spinal system, which is beyond the control of the will; and ascribing those connected with the functions of animal life, such as muscular movements, speech, attitudes, and histronic expression, to the cerebro-spinal system, and especially to that part of it *under the control* of the will.

Emotional Affections produced through the Cerebro-Spinal System.—We propose to discuss this *part* of the subject *briefly*, for the effects of emotion, acting through the cerebro-spinal system exclusively, are so evident and familiar as to require but little comment, and they seldom constitute a disease or even a functional disorder, except when they occur in extraordinary degrees of intensity. In other words, the injurious

exists, had we the means of detecting it. Until we have made this advance we can but divide the emotions into classes, and give each class the part played by it in the economy. For the present our division is very simple, our object in Section I being chiefly to determine the relation which emotion bears to the sympathetic system, and thus to prepare the way for a better understanding of Section II. To facilitate our inquiry into this subject, the action of emotion upon each of the organs will be considered separately; and wherever peculiar or special effects follow the action of any one of the varieties of emotion, the emotion and its results will be indicated.

effects of emotion are generally produced through the sympathetic system of nerves, or at any rate through that part of the cerebro-spinal system which is beyond the influence or control of the will.

Although we thus state that no great pathological results are likely to follow, yet a study of the effects of emotion as evinced by various movements when we are under the influence of "feeling," would prove most interesting as a purely physiological inquiry. For instance, the expression of the features in histrionic movements, the attitudes assumed under the influence of passion, and the instinctive movements which impulsively accompany our emotions, are well worthy of more careful consideration than they have yet received (See paper by the Author on Instinctive Movements, read at the British Association Meeting, 1863.)

When shall we understand how it is that in one case we have a complete paralysis, and in another, deeds of surprising strength and agility under the influence of fear, joy, or other strong emotion; and how shall we account for the different ways in which these affect the same individual at different times and under different circumstances?

As regards the morbid effects of emotion, we know that there are several distinct diseases dependent on irregular action of cerebro-spinal nerves which can be induced by emotion. Dr. Jackson has reported some very interesting cases (in the *Medical Times and Gazette*), showing how easily emotion acting on an exhausted nervous system will produce chorea; and in my own experience I have met with a fatal case of

chorea which was probably determined by a severe blow to the affections. In another instance a lady suffered severely from chorea *after* an engagement to be married was broken off, nor could she be cured *till* the engagement was renewed.

It is curious that these diseases, which can be produced by emotion, seem sometimes to have been cured by fright and other emotional shocks to the nervous system.

Epilepsy is another convulsive affection of the cerebro-spinal system, which is sometimes undoubtedly set up by the prevalence of depressing emotions, and when the disease is not set up by emotion, it is often aggravated by anything which excites or depresses the spirits. Of the former fact I have a painful proof, for at present I am treating a former fellow-student whose fits commenced during a severe reverse of fortune.

We may instance paralysis agitans as being undoubtedly aggravated by emotional causes in some cases, and we are all familiar with the trembling hand of the nervous man, whose emotions seem to act by withdrawing that nervous tone of the muscles which normally prevents contraction, and thus steadies the muscles. Emotion sometimes determines an attack of apoplexy. I have closely observed a patient who had a *stroke* during a fit of severe mental depression, at the loss of his wife; he is now slowly recovering the use of a palsied arm, but when depressed, or in any way made nervous, the palsied member begins to shake with considerable violence.

In addition to the muscular affections produced by emotion, there are others of a more serious character set up by it.

Insanity is well known to result from this cause, and even where decided insanity is not reached, the reasoning faculties may be diseased, volitional power shaken, and more or less imbecility of mind produced. In some cases emotion thus reproduces itself in a curious way. The reasoning powers being shaken, the calm calculation of sound judgment ruffled, and at the same time the power of the will being diminished, the great restraints upon emotion are gone; foolish fears are no longer dismissed by sober sense, the risings of morbid feelings are no longer controlled by the will, nor crushed by it, and thus the way is open for the rushing in of vain imaginations, groundless fears, or absurd suspicions, and the poor patient becomes a prey to these unhealthy occupants of the mind. The man is not insane, as we shall hereafter explain, but he is the victim of emotional disease, which, while not causing him to be haunted by positive delusions, leads him irresistibly to view the dark side of everything, to entertain the most distressing fears where none ought to exist, till life is made gloomy, morbid, miserable.

The pathological changes which accompany these symptoms have not yet been made out, but there can be little doubt of their existence. Defective nutrition of the nervous centres, irregular distribution of the blood, inducing paresis through the capillaries of the brain, and fatty degeneration of the nervous tissues, are all probable conditions.

May not, for instance, a paresis of the hemispheric ganglia be produced by the contraction of the cerebral vessels; and may not the contraction of these vessels be effected by a strong emotional impulse acting through the sympathetic (vasomotor) fibres supplied to their blood vessels? May we not have changes in the brain somewhat similar to those which occur in the cheek under the influence of emotion? The pallor of the cheek produced suddenly by a strong emotion would thus be an illustration of what occurs in the brain when emotion determines an epileptic fit; the flushed cheek would illustrate (active condition of cerebral vascularity) what occurs when the brain is stimulated or excited by emotion; and the sunken countenance, with its pallid cheek and unhealthy complexion, such as occurs when the spirits are depressed and grief is the prevalent emotion, would form the counterpart of the jaded, weak, and imperfect action of the brain, which is so apparent in times of severe grief.

CHAPTER III.

THE EFFECTS OF EMOTION ON THE SYMPATHETIC SYSTEM.

In considering the effects of emotion due to the action of sympathetic nerves, we must remember that these effects are incapable of being produced or repressed by the will; in fact, that they are conditions beyond voluntary control.

Now, as there are most important cerebro-spinal nerves supplied to parts *beyond* the control of the will (pneumogastric), we shall best overcome the difficulties which beset our path of inquiry by comprising all such parts under our present head. At the same time, we shall as far as possible be most careful to distinguish the action of the one system of nerves from the other, while considering the effects of emotion upon those organs which are supplied from both systems. These parts of the body which are not under the control of the will are peculiarly subject to the influence of emotion, both because of their connection with the sympathetic system and because they cannot be influenced (even through their cerebro-spinal nerves) by any voluntary effort. Thus it is that the most baneful but least evident effects of emotion are to be found in these parts supplied by the sympathetic system—

viz.: in the viscera, in the blood-vessels, and in the involuntary muscular organs, leading to disturbance in the processes of nutrition, circulation, secretion, and chemical change. The will is powerless, while emotion can, unhindered, do its worst in deranging or even destroying the important functions of these parts.

We shall, in making the following observations, go carefully through the chief of the *viscera* (including their blood-vessels, muscular apparatus, and their functions), and of these, the organs of circulation will be considered first.

1st. *The Organs of Circulation. The heart* is an organ highly susceptible of emotional excitement, and even the strongest *volition* and the coolest temperament will not give immunity from this susceptibility. Thus, easily excited in those of nervous temperament, the organ is ever being disturbed by emotion. Note, for instance, the palpitation or paralysis of fear, the sharp rapid strokes of suspense, and the intermittent action of a weak or unhealthy organ when it is under the influence of emotional excitement. Further, we have more than once noticed that long continued anxiety will lead to a weak and slow action of the heart, causing the pulse of the wrist to fall below its normal standard both in frequency and force, and at the same time rendering the organ liable to become excited and turbulent on the slightest accession of new emotional feelings. Accompanying this condition of the heart's action, we may have all the consequences of a sluggish circulation, as the following case will show: "A gentleman, disappointed in business, was

subjected to continual annoyance from superiors, who contrived to keep him in a subordinate position; at length he became a prey to low spirits, and mourned secretly over his trials, and at the same time he lost his health from bronchitis, dyspepsia, pains in the back, and swimming in the head; but the first and most marked symptom consisted of an exceedingly weak and slow pulse, with a tendency to intermit and to vary on the slightest occasion; when the patient was sitting its average was sixty, but on rising to his feet it immediately rose to a hundred, and continued so as long as he was in the erect posture. As soon, however, as his trials passed away the organ became restored to its normal condition."

In more serious cases of sudden and painful shock to the feelings, the heart has been known to cease acting, or it has been excited to an action so turbulent as to injure its valves or their tendinous cords. (See case by Dr. Embleton, Northumberland and Durham Medical Society, Dec., 1862.)*

Terror may paralyze the heart and so may *joy* when it suddenly seizes upon a person already overpowered by despair. The Roman matrons, after the battle of Cannæ, on seeing their sons, whom they thought to have been killed, dropped down dead on the spot. *Fear*, the chronic form of fright, occasions a tremulous palpitation, not the full, bounding beat of energy or courage. *Rage* produces præ-cordial oppression, and

* The mechanism of the accident in Dr. Embleton's case is well described by him as dependent upon the interference with respiration, produced by severe sobbing.

has been known to bring on an attack of angina pectoris. The apprehension of heart disease is very often productive of cardiac irregularity. As a rule, hope will excite and sustain the organ, despair or anxiety will depress it, and contentment or peace of mind will give it healthful normal action.

2nd. *The Arterial System.*—The state of arterial circulation is often markedly altered by mental perturbation or excitement; of this nature in many cases are the various throbbings or pulsations to which nervous people are subject. Such arterial throbbings may become continuous, and remain after the mental excitement has passed away, and when nothing remains but the visceral sensations indicative of emotional susceptibility. In these nervous ones the abdominal aorta often becomes excited, and alarms the patient by its violent heavings. To such an extent is this true that "*Abdominal Pulsation*" has now become a recognized malady. Cases of this kind occur in nervous men of unoccupied mind, in hysterical young women, in older women at the change of life, and in all cases where the excited state of the emotions renders the sympathetic system susceptible of excitement, and thereby induces high nervous tension of the arterial system. This is the more noticeable in the case of the aorta, as its coats, while almost devoid of direct nervous supply from the cerebro-spinal system, are very plentifully supplied and freely surrounded by the sympathetic system, in the midst of which the vessel lies.

Still more evident are the effects of emotion when

they are evinced by the circulation in the smaller arteries; on this subject we shall dwell somewhat at length, because it is especially over these vessels that the emotions exercise a decided sway, and because the control of arterial circulation is one of the few functions which direct experiment has decisively shown to be possessed by the sympathetic system of nerves. By our knowledge of this function, however, we are able to perceive that it exercises an influence not only widely diffused, but having for its object the control of the circulation througout the whole body. Through this control it promotes or prevents the nutrition of the various tissues and influences the functional activity of those organs to whose blood-vessels its branches are chiefly supplied. In the cheek, fortunately, we have a region influenced by emotion, and and at the same time the region where Bernard demonstrated the influence of the sympathetic nerves. Let us, therefore, compare the effects of emotion upon the circulation in the cheek with the effects produced by division and stimulation (galvanic) of the sympathetic trunk:

On dividing that nerve in the neck, hyperæmia of the corresponding side of the neck and face present themselves while on galvanizing the divided nerve a contraction of blood-vessels producing pallor results. Accompanying the hyperæmia and pallor corresponding changes in the temperature of the part ensue; with the former it rises, and with the latter it falls. Effects similar to these cannot be produced by division or galvanism of the cerebro-spinal nerves supplied to

these parts, and we know of no psychical power except *emotion* which is able to affect these vessels in a like manner. While volition is especially deficient in this power, the effects of emotion are too obvious to need much illustration. The flushed cheek and the deadly pallor of the angry adult, and the blushing cheek of the modest youth or maid are examples familiar enough to us all.*

In addition to this proof of the influence of emotion acting through the sympathetic system in producing effects entirely beyond the control of the will, we have also, in what has been said, a beautiful illustration of the variety of effects produced by different kinds or degrees of emotion. In the case of the blushing youth we have a hyperæmia, while in the terror-stricken man we may have a *similar* degree of pallor; nay more: the blush and pallor may in the same subject "come and go" at intervals, showing how soon the effects of emotion may change from one extreme to another. We have got clear proof, then, that in the cheek we can produce by emotion alike those effects that result from galvanic stimulation and those that follow the division of the sympathetic nerve.

* We must not be supposed to exclude the cerebro-spinal system from all connection with these effects of emotion, for as yet our knowledge of the anatomy of the sympathetic system leads us to look upon it as being in intimate connection with the cerebro-spinal system, and as deriving many nerve fibres therefrom—a vast offshoot, indeed, from it for the supply of the viscera. Emotional disturbance, however, in being distributed throughout the body, often takes the course of this *offshoot*, and manifests itself by effects which cannot be produced by the will, nor can they be attributed to the action of the cerebro-spinal nerves.

The same connection between emotion and the vascularity of organs is observable in erectile organs, which become enlarged and vascular when certain passions are aroused, viz., the penis in man, and the *comb*, &c., in *animals*.

Ecstatic Bleeding.—Professors Garres, Léon, Boré, Cerise, have related an instance of religious fervor leading even to extravasation of blood, or transudation of it from the skin. Marie de Marl, the ecstatic of the Tyrol, was thus affected. The bloody sweat of our Lord seems to me to have its explanation in the intensity of his emotional suffering, which would lead to such an alteration of the innervation of the blood-vessels as to produce a hyperæmia intense enough (in a body already weakened by suffering) to burst them.

It now remains for us to see how far this connection between emotion and the action of the sympathetic nerve can be traced in the other parts of the body.

Involuntary Muscular Fibres.—In close connection with this part of our subject is the effect of emotion upon the involuntary muscular system of unstriped fibres, for doubtless many of the phenomena presented by blood-vessels under the influence of emotion are due primarily to the action of these fibres. Everywhere in the body we find evidence of this. In the skin, for instance, in addition to its vascularity or anæmia, we have horripilation or erection of the hair, and cutis anserina, as results of emotional disturbance, each of which phenomena has been shown to depend on the action of non-striped muscle. (*Kol-*

licker and *Lister*.) These visible effects of emotion acting on the non-striped muscular fibres, naturally afford a clue to the mechanism of the effects of emotion on internal organs, especially as these fibres exist so largely in the component parts of most of the viscera, viz., in the walls of all hollow canals, in the alimentary canal, in the mucous membranes, in the ducts of glands, in blood-vessels, and in absorbents, all of which, more or less, contain the involuntary fibre.

It will be seen, therefore, that while *volition* especially connects itself with the *cerebro-spinal nerves and striped muscle*, emotion has a peculiar affinity for the sympathetic system and non-striped muscular tissue.

3d. The way is now cleared for the investigation of the influence of emotion upon those organs whose functions depend largely upon the activity of the capillary circulation in them, which contain non-striped muscular fibres, and are supplied by nerves of the sympathetic system.

The Secreting Glands belong to this class or category, notwithstanding their supply of nerves from the cerebro-spinal system; for these latter never convey volitional impulses to glands, so that emotion effecting their functions must do so directly through these non-volitional cerebro-spinal nerves, or indirectly through the sympathetic nerves—in fact through the vaso-motor nerves. And inasmuch as the established functions of the sympathetic fibres are so strongly resembled by the effects of emotion, we are bound to admit that it is chiefly through this system

of nerves, that the bad or good influences of emotion are produced on these glands.*

It will be best to inquire into this subject as it affects the glands, whose actions we can see or positively determine, namely, the *external* glands, and then to apply our observations to those which are not visible, the *internal* glandular organs, endeavoring to discover if, under the influence of emotion, the behavior of these two classes is the same.

Let us begin by observing that the salivary glands are often influenced by mental causes; the thought of food, or the sight or smell of it will often induce an immediate copious flow of saliva, causing the mouth to water, as the phrase expresses it. And we find that depression of spirits or great mental anxiety, terror, nervousnes, intense apprehension, all check and *even vitiate* the oral secretions.† The clammy mouth of a young speaker, whose tongue is impeded in its action by nervousness, illustrates the state of things referred to.

The *glands of the skin* may have their sweating function materially increased by emotion, and in some

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*It does not seem necessary to our argument to pronounce as to which class of Brown-Séquard's nerve-fibers is concerned in producing the effects which we assign to emotion, whether in the case of the blood-vessels or the secreting glands. It is enough for our purpose, in this prefatory part of our Essay, to say that all these nerve-fibers must be included in the class of nerves we have indicated, as the non-volitional vehicles of emotional disturbance in these organs.

†I have heard of rage producing a poisonous effect upon the saliva. How far is it true that the poison of some snakes is only secreted during paroxysms of severe emotion, as fear, anger? and how far does emotional excitement tend to poison the oral secretions of rabid animals?

cases, as when the perspiration is cold, no external or physical cause can be operating in bringing this about.

The *mammary gland* is undoubtedly influenced by emotion and this affords an instance of the power of emotion to vitiate a granular secretion. The child at the breast is well or ill according to the quality of its mother's milk; its health, therefore, has become a test of such quality, and experience is too vast to permit us to doubt for a moment that infants do suffer when the mind of the mother is anxious, or when her spirits are depressed. There is a story of a carpenter's wife who saw a murderous assault made upon her husband, and was intensely horrified; she suckled her infant immediately afterwards, and though the child was at the time in perfect health, it died of convulsions in a few minutes.

The lachrymal glands, the last of these external glands, are more susceptible of emotional excitement than any other glands, and the effects produced are most patent to us all.

Leaving now those secreting organs, of whose action we have visible evidence, let us seek in other hidden organs for evidence of similar effects produced in them by emotion.

The *stomach* will be found to be most intimately connected with morbid emotions; we propose, therefore, to dwell upon this organ first, and inquire if the effects produced in its *secreting* apparatus are not analogous to those of the salivary, mammary, or lachrymal glands. The action of the stomach is largely

influenced by its vascularity, and its vessels are freely supplied by sympathetic nerves from the large centres in immediate proximity to which it lies, while its muscular coat is composed of fibres *over which the will has no control.* Emotion, on the other hand, can produce vomiting from nausea at the sight or thought of a disgusting object, its one visible action, so that from anatomical data and from this action or function which we can see, there is evidence in favor of the organ being one which will be influenced by emotion. Taking the expression of hunger (appetite) as a sensation really produced by systemic wants, but felt in nervous centres presiding over gastric functions, how suggestive is the influence which emotion notoriously exercises in destroying or in interfering with this healthful sensation. Further, how are we to account for derangement of the process of digestion in cases where it is arrested or checked by strong emotion, or how to interpret the evident aid to digestion derived from a cheerful frame of mind, except by attributing the former to an arrest (or perversion) of secretion, and the latter to an increased and encouraged flow of gastric fluid?* We have seen reason then to believe that the secreting power of the stomach is influenced by the emotions, and, *as is the case in other organs,* we infer that this is brought about by alterations in its vascularity which we have seen to be regulated by sympathetic nerve fibres.

* It is curious as illustrating the effect of temperament in modifying the effects of emotion, that certain *choleric* persons cannot digest their meals properly without a dose of anger as an accompaniment; who, if they are not quarrelsome, are sure to be dyspeptic.

It is important to remember here that in close proximity to the stomach we have the great centres of the sympathetic system, and that when strong emotion of any kind is felt, the abdomen and that part of it called the pit of the stomach is the part to which the sensation is generally referred.*

All that distress of mind accompanied by emotion experienced by those who have to contend with the harassing difficulties and trials of life, is rendered baneful chiefly by this *visceral sensation* referred to the gastric region; for its accompanying conditions lead to morbid states of the digestive organs. The appetite fails in such cases, the sensation of hunger being exchanged for a sensation of emotion; and while the sensation of hunger fails, the want of food felt by the system is made known by præcordial faintness and sinking; the patient complains that food "has to be forced down," and if a full meal be taken it is certain to be followed by uneasy fulness or weight at the epigastrium, and other symptoms indicating the inability of the stomach to digest its contents; palpitation or fluttering then occurs, and flatulence is very common. Accompanying these symptoms there is always an accession of emotional distress.

In other cases an empty state of the viscus is the more distressing, and relief is afforded by the introduction of food; for by it the patient is stimulated and the

* Dr. Browne, of the Newcastle Lunatic Asylum, tells me that he has seen a case of emotional insanity, in which there was a sensation of a bright flash of light in the epigastrium, and he has treated three others who complained of darkness in the same region.

spirits raised for a time. With these symptoms there is more or less irregularity of the bowels; and in some whose temperament is excitable, nervous or sanguine, when the emotions are of an exciting nature, diarrhœa or even dysenteric symptoms with tenesmus may supervene. Many patients have declared that every vexation of mind through which they passed was certain to be followed by diarrhœa. In others again, whose temperament is sluggish and melancholic, and where the emotion is depressing, the bowels become sluggish and confined.* In one case the liver seemed to become large and congested and the stools pale, after a few weeks of anxiety and excitement; in others a copious discharge of vitiated bile is not an uncommon accompaniment of distress. It should be added that many persons are subject to an attack of piles when passing through mental suffering and anxiety.

The Liver.—There is no organ more intimately bound up with emotional disturbance than the liver. This relation has been observed for many centuries, and was of old more thoroughly believed in than it is now. As will be seen hereafter, this organ is not only influenced by emotion, but it has the most wonderful influence over the mind when its functions are disturbed. That an organ so closely connected with emotion and mental vigor should also be well supplied by nerves, is to be expected, and while we know that the liver in some of its functions is presided over by the pneumogastric nerve, we know, too, that its

* In melancholic insanity there is generally a constipated state of the bowels.

large supply of nerves from the solar plexus must also have an important influence over its functions. Reasoning from the known and visible to the unknown and hidden, we are, I think, free to infer that the secretions of the liver and the state of the portal circulation are largely influenced by the emotions, the effect of which influence is to produce the many "bilious" symptoms complained of by the gloomy and depressed. Many patients have a "bilious attack" every time their mind is disturbed; and, worse than this, jaundice is sometimes produced by a sudden or severe emotion.

EMOTIONAL DISTRESS AND DYSPEPSIA.

While we are laboring under the influence of fear, anxiety, or any emotions of this class, the digestive organs may have their functions materially deranged. This we have already seen to be the case with the chief digestive organs considered separately, but there remains for our consideration the general condition into which a patient may be brought, when these viscera have been affected by deleterious emotion. Such a man puts on a dejected aspect, his movements become languid, his eye is dim, his natural force is abated, and the attention, liable to wander, easily concentrates itself upon the cause of distress, be it real or imaginary; unnerved, he fears the approach of difficulty; he shrinks from strange society, and is apt to allow the sensations in his disordered organs to occupy his attention till his "emotional distress" is greatly increased thereby. These and many other symptoms

appear as the result of a reaction which rapidly supervenes, whereby the organs begin to tell upon the faculties of the mind. In addition, the tongue becomes coated, and is often tremulous. The appetite is lost, digestion very seriously interfered with, sleep becomes disturbed, and often fails to be "tired Nature's sweet restorer," by leaving the sufferer to find himself exhausted befere he leaves his bed to enter on his daily duties. With all this the functions of the sympathetic system become seriously disturbed. Exhaustion of the semilunar ganglia and solar plexus, or an irritated condition of these parts, may become developed, with the usual symptoms indicative of these conditions, which are to be fully described in Section II.

The disordered conditions of the sympathetic system not only induce a disordered action in the various viscera, by which the nutrition of the system is interfered with, but there is also more or less interference with the action of more remote parts. The impaired functions of the cerebro-spinal system, and the failure of the general nutrition of the body, are both instances of this. The mind becomes less able to bear up against anxiety, the patient becomes jaded, unable to work at his usual business, and the memory and other mental faculties in time become diseased. Attention to objects of interest and duty become difficult, the mind grows confused, and the whole system becomes weak and depressed—a ready victim to any evil which may arise, because of having lost its resisting power and reserve strength. [See Paper by Dr. Myrtle on Jaded

Brains, Transactions Northumberland and Durham Medical Society, 1864.]

Such is a slight sketch of the manner in which the mind and body may become affected by emotion acting through the sympathetic system upon the digestive tract. We will close our remarks on the subject by quoting the case of Mr. W.—— as an instance of the above-noted sequence of events, and as showing that *apart from mental activity* emotion will lead to such a state of things.

In this case the mental faculties being moderately exercised, he suddenly loses his son, and becomes severely depressed in spirits. In due time the digestive organs suffer; he complains greatly of sinking at the epigastrium, and soreness felt internally. From this he goes on to lose energy, and imagines a host of other evils to be before him. He then becomes a prey to every little trial which may arise, is unable to face the ordinary difficulties of life, and eventually gets into a continual whirl of emotional excitement and susceptibility. At every turn his emotions are upsetting his digestive organs, and in their turn the digestive organs, when in the least disturbed, keep up his distress of mind. Thus life is made wretched and miserable long after the first cause of grief has been almost forgotten.

4th. *The Urinary Organs.*—Our remarks on this secretion necessarily involve the consideration of those changes which, occurring in the system at large when it is under the influence of emotion, lead to abnormal conditions of the urine. The renal organ itself is closely related to the sympathetic system, and is easily

influenced by emotion. Bernard has shown that division of the sympathetic nerve may lead to saccharine urine, diabetes insipidus, or simple increase of the aqueous parts of the urine, and under the influence of emotion we witness somewhat similar results, such as the excessive flow which occurs in hysteria or the rapid secretion which goes on during periods of anxiety, as, for instance, in young people and others who for the first time are about to subject themselves to the ordeal of acting or speaking before a public assembly.

Dr. Crichton Browne writes to me—"In Dr. Begbie's wards in the Edinburgh Infirmary, some two years ago, I recollect seeing a lad who was in the house as convalescent after some trifling complaint, and who, owing to the overcrowding of the hospital at the time, was sent to sleep in a bed with a patient who was laboring under diabetes mellitus. He was very averse to this arrangement, and only yielded to it after much persuasion, expressing his conviction that he would catch the disease. The first morning after sleeping with the diabetic patient he began to pass enormous quantities of urine. Day after day the amount increased, until he presented a singularly well marked case of diabetes insipidus. No deception was possible —the extraordinary quantities of urine were actually passed, and were only reduced to a normal standard by changing his bed. Here was diabetes insipidus caused by apprehension."

The chemical changes in the urine indicative of more profound changes in the system in connection with nutrition and the metamorphosis of tissue are of great

pathological value, but, unfortunately, are hard to be understood. It would be interesting to know whether any change in the acidity of the urine occurs during a paroxysm of emotional excitement. Beneke found, after an elaborate inquiry, that when the tone of his nerves was good the amount of his urine and urea increased, and that when he was languid and depressed the quantity diminished.—(*Parkes.*)

The observations of Begbie and others establish a close relation between the state of the emotions and the presence of oxalic acid in the urine; and whatever doubt there may be as to the origin and indication of that acid in the urine, the fact remains that it is very commonly present when patients are suffering from depressing emotion; and, doubtless, sometimes results from such depression of spirits. Uric acid, too, and urates, are very often present in urinary deposits during times of mental distress.* We have, however, no observations to show that there is any real increase in the excretion of these substances, as their presence may be due to deficiency of urinary water, or to excessive acidity of the urine. We somewhat doubt the production of the phosphatic diathesis by any mental anxiety which does not manifestly derange the cerebro-spinal centres, and we think that excess of phosphates

* It is important to observe that the bladder seems to lose its containing powers during periods of emotional excitement; it is also important to distinguish the frequent micturition which then occurs from the real increase of urine which also takes place. The condition of the bladder may arise from increased irritability of its muscular coat, from increased sensitiveness of its mucous membrane, from relaxation of its sphincter, or from a combination of these conditions.

is more the result of excessive intellectual activity than of emotional excitement, for often an iridescent pellicle and phosphatic deposits appear, when none but the most amusing and interesting studies have engaged the mind; whereas, on the other hand, observation of excess of phosphates during mere mental distress is wanting. Putting together the little we know of the effects of emotion on the urine, we are led to infer—

1st. That the changes are due to alterations in the circulatory and secretory apparatus of the kidneys.

2d. That the chemical changes are those which are commonly associated with derangement of the digestive organs inducing uric and oxalic acid diathesis, and not those associated with changes in the cerebro-spinal nervous system inducing the phosphatic diathesis.

5th. *The Generative Organs.*—The influence of emotion on the organs of generation is most decided, and produces its effects through both the cerebro-spinal and sympathetic systems of nerves. The ordinary functions of the *sexual* organs are to a great extent under the influence of the emotions; although the will may control, encourage, or check the emotions or desires, these latter still form the chief psychal excitants of the sexual organs; for, apart from desire the will is powerless to bring them into proper action. While the muscular movements induced by sexual excitement are chiefly of cerebro-spinal origin, the intense vascularity (arterial and capillary excitement of the parts) is doubtless due to changes induced

through the sympathetic system. In the female, the *generative* organs are more extensively susceptible of emotional influence than in the male; for, in addition to the ordinary *sexual* functions of the organs, which are, equally with the male organs, brought into action by sexual desire, the *periodical* functions are often markedly influenced by sudden or depressing emotions. At one time a diminished, at another an increased catamenial flow is induced, while at a third complete arrest of the function follows exposure to sudden or severe mental shock. For the present, however, we leave this point, to direct our attention to the male organs in their relation to emotional influence.

Where there is deficiency of sexual passion, the functions of the organs become impaired and their structure atrophies. This condition is seen in the recluse, in celibate, or in him who has never allowed his affections to go out towards another. It is seen in him, too, who has exhausted the nervous powers of his mind by long-continued mental strain. It occurs also in many cases where men are exhausted by the cares of business. In others the functions of the organ are weakened by alienation of the affections, as seen when the conjugal ties are only of nominal or legal tenure and man and wife live together without affecting sexual intercourse from this cause alone. In the man who is "used up" and exhausted we find more or less of his *ennui* to result from want of emotional force in his system.

The functions of the sexual organs seem to require

the abeyance for the time of all other passions or emotions, except those which induce their excitement; *i. e.*, they require the concentration of all emotional force into one channel. This paralyzing influence of other emotions is seen when, in addition to the sexual passion, great anxiety or general nervousness is present; the unsuccessful attempts at sexual intercourse in newly married men are an instance of this; these attributing their want of success to some bodily weakness become still more nervous, and it is not until they obtain confidence (by the abeyance of the interfering emotions) that the necessary emotion can have its way to success.

Cases occur wherein a morbid excitability of the organs is kept up by the too constant existence of erotic thoughts; these lead either to too great indulgence in sexual intercourse, and thus injure the system, or they lead to self-abuse, with its train of attendant evils.

As the female is in a great measure the passive agent in sexual intercourse, the direct evidence of the effect of emotion upon her sexual organs is small. Doubtless, however, as in men, the functions of the organs may be exalted or depressed by corresponding emotions, and in some cases the presence of an undue amount of disturbing emotions is paralyzing to her functions. By exciting the female to masturbation, the sexual instincts may, when in excess, do great harm.

On the organs of *generation* proper we have various effects produced by emotion. The periodical health

may suffer in various ways. Amenorrhœa from depressing emotion or sudden shock, excessive flow from exciting anxiety, and in some cases menorrhagia with loss of clots of blood from wearing mental excitement, are not uncommonly observed. Pain may be added to the above symptoms, and, indeed, all the effects which can be ascribed to dilatation or contraction of the blood-vessels of the uterus, or to contraction of those muscular fibres which preside over their calibre and that of the organ which they supply, do occasionally occur, as the result of emotion. Of more serious consequence, and more thoroughly proved by experience, are the effects of emotion upon the development of the fœtus in utero. It is needless to discuss the numerous teratological departures from the normal standard of development which are occurring every day around us, and to connect these with some well established mental shock, in order to show that even the member or organ through which the shock is conveyed to the nervous system is that which suffers in the child. Indeed, evidence is not wanting to show that the cause of the emotion can often be traced in the kind of deformity which exists in the child.

The effects produced by the general tenor of the spirits upon pregnant women are beyond dispute; excitement and depression both interfere with the safety of the mother and the development or nutrition of the fœtus, and the origin of many inherited diseases connected with nutrition is doubtless to be found in the state of the sympathetic nervous system

induced by emotion during pregnancy. More striking still, as showing the effects of emotion, are the miscarriages, abortions, and premature confinements, which follow sudden shocks, excitement, grief, depression, and the many other varieties of emotion which play upon the female mind. It must be remembered that during the period of pregnancy the nervous system is very susceptible; new instincts, passions, and emotions are being evolved in it which readily respond to even slight exciting causes. While these new emotions are evolved, we do not see a corresponding increase in the intellectual faculties; nor, indeed, is there any evidence of change effected in the cerebro-spinal system.

Ovarian excitement ending in congestion of the ovary, ovarian pain, leucorrhœa, ulceration of the os uteri, and perhaps other more serious diseases (such as cancer), are often in part due to emotional excess, and when these diseases exist, they are always aggravated by an accession of mental anxiety or grief.

It would be impossible to complete this part of our subject without adverting to those cases of hysteria which manifestly depend upon a morbid state of mind combined with a susceptible state of body; and though this disease must be discussed in the pathology of the uterine organs as often originating in them, it is equally important to view that aspect of the disease which results from the play of morbid emotions on the body. Our view of hysteria when caused by mental emotion, may be stated as follows: strong passions, jealousy, anger, and sudden fears, in

their effects or action on the body, often expend themselves upon the internal organs, and this especially when their outward manifestation through the cerebro-spinal system is suppressed or restrained. The organs which chiefly sustain the effect of these emotions and suffer thereby, are in *man* the digestive, in *woman* the generative. While primarily interfering with the nervous system at large, these emotions are especially directed to that part of it which presides over the uterus and its appendages. When this organ becomes disordered, it keeps up the disturbed conditions of the emotional centres represented in the ganglia of the hypogastric plexus, till at last the emotions become too strong for the weakened power of the will, and a paroxysm of hysteria is the result. This is the history of the development of hysteria when the emotions are not encouraged by the will, but in cases where the will is in league with the emotions, of course the attack will be more easily induced, and will take on a somewhat different form.

CHAPTER IV.

THE PREDISPOSING CAUSES OF EMOTIONAL EXCITEMENT.

BEFORE proceeding to the second part of our subject, it seems necessary, now that we have concluded our observations on the bodily effects of emotion, to make a few observations on the *chief causes* of emotional excitement; *i.e.*, on those circumstances and conditions which predispose to an excess of morbid emotion.

One of the most common predisposing causes is want of occupation. The mind left without an object to feed upon, turns inward upon itself, thereby becomes intensely sensitive to little evils, and tends to dwell upon them. This is seen to be the case very often in those who, having been accustomed to an active life, seek retirement, thinking it will bring with it peace and rest to their overworked minds. For instance, men of business, after a life of toil and care, often retire into private life, thinking thereby to obtain rest and comfort of mind and body, but they are not unfrequently sadly disappointed, for they become a prey to depression of spirits; they get out of their element, and nothing will rectify their mental state but active employment in interesting pursuits, thus showing that a healthy exercise of mind and body is by far the best cure for the imaginary evils of an unoccupied mind.

Solitude is another frequent predisposing cause of

one or other of the depressing emotions. "It is not good that man should be alone." Students who live alone, bachelors, widows and widowers who have to mourn alone, and old maids, are among the many victims of gloomy solitude which often so affects the mind as to implicate the bodily organs in disease. We all acknowledge how differently we eat and digest our food when a genial glow of pleasant emotions resulting from good company takes the place of those sad forebodings so apt to fill a mind, which, for want of another object, turns inward and feeds upon itself till all its vigor and life are devoured.

A want of prospect in life is another predisposing cause of depression of spirits, and a blighted prospect still more so; these sap the foundations of sanguine hope and ardent expectation which are so healthful, especially to the *young* mind and body.

Persons situated as those above described, especially if they have what is termed a sensitive mind, are liable to become possessed by a morbid self-consciousness; they find thoughts of self at every turn; in reading a book they soon cease to follow the story of its pages and become lost in self; if they travel or devote their time to the most interesting pursuits, it is the same; and thus the mind becomes, to all that concerns its owner, exquisitely sensitive, and a hurtful emotion arises from causes of the slightest and most imaginary nature. Generally such persons are beset by one or more imaginary evils; they see these in everything and everywhere, all things are seen to bear a relation to them, to increase them or make them more certain,

till the sufferer's poor body is scarcely able to carry his burdened soul; burthened not so much by any real sorrow as by some imaginary evil conjured up by the aid of diseased emotions. Monomania often results; not a monomania however in the sense of a *real* delusion; for emotional disorder seems to distinguish itself *practically* from real insanity by one marked feature, viz., it can exist apart from delusions as to any fact or affliction really present, although it induces suffering from dreaded evils equally as pungent as if the evil had really occurred. These sufferers do not, for instance, like the rich or well-befriended lunatic, bewail the loss of friends and fortune; but they pass their time *dreading lest* such losses should occur to them.

When there is but a morbid apprehension that some dreaded evil may come, or that some dreaded disease is already lurking in the system ready to engulf the sufferer in its terrible consequences, every trifling circumstance is interpreted as in some way leading to this dreaded evil, and therefore alarm is taken at every incident that may arise. Much of all this suffering results from want of occupation in other things; for the attention directed to and concentrated on one object, and that object connected with self, so intensifies the importance of it as to make it unbearable. The directing of too much attention to any one part of the body has a very injurious influence by producing or intensifying sensations in it, in some cases even causing an illness, in others greatly increasing one.—(*Sir H. Holland.*)

SECTION II.

EMOTIONAL DISEASES AND THEIR TREATMENT.

CHAPTER I.

OUTLINE OF ARGUMENT.

THE various lesions of function and structure which induce a diseased condition of the emotions will next occupy our attention.

In opening out this department of our subject, we would look upon it as most important in a practical point of view, and as deriving its importance chiefly from the fact that the pathological conditions present are generally amenable to treatment, so that in many cases relief of mental distress is attainable by medicine; in other words, we shall find that morbid conditions of the internal viscera do so affect the state of the nervous system as thereby to lead to serious mental results, and that these serious mental affections are not removable by treatment, except it be directed to the condition of the said internal viscera. Further, we shall see that the counterpart of what was true

with regard to the influence of the emotions on the viscera, is true with regard to the influence of the viscera on the emotions, viz., that the digestive and generative organs, with their system of nerves, are those generally at fault, and that the power of an organ to induce emotional disorder runs *pari passu* with its supply of nerves from the sympathetic system. Indeed, we hope by adducing many facts and illustrations, and by drawing fair and legitimate conclusions from these, to show that in so far as the mind is influenced by the body, the state of the sympathetic nervous system chiefly determines the state of the emotions; and that the emotional part of man's mental constitution is to the above extent influenced by, if not dependent upon, the state of the sympathetic system.

Our opinion is, that the intellectual faculties themselves derive zest and their *motive** power from the action of the sympathetic nerves supplied to the blood-vessels of the brain, and that these faculties may therefore be strengthened or weakened by the state of the sympathetic system, from which they thus derive potentiality. And, if we can show that certain emotions which excite the functions of the sympathetic nerves are stimulating to the intellectual faculties, and that a healthy state of the sympathetic system is conducive, if not necessary, to the existence of such emotions, we shall have reason for the conclusion that the sympathetic nerves supplied to the brain form the

* The power which is derived from "*motive*."

medium through which the intellectual faculties are so influenced by the emotions; and, conversely, a depressing emotion, or a want of emotional force for any purpose, will be powerless to stimulate the brain, and will, by a reverse action of the sympathetic system, even depress its powers. Thus is it that courage, zeal, determination, hope, and various kinds of excitement, will carry the mind through wonderful intellectual feats, while despair, anxiety, suspense, and other varieties of nervous depression, have a paralyzing effect. Thus, also, it happens that when the organs are deranged, the sympathetic system fails to convey the impulses of healthful stimulating emotions. The mind loses its tone, motive becomes unavailing, endurance weak, fortitude lost, and all that supply of animal courage so necessary to mental vigor becomes deficient; while its place is taken by groundless fears, a nervous apprehension of imaginary evils, morbid self-consciousness, and a host of enervating injurious thoughts which render a man helpless and rob him of that which enables him to battle with the trials of life, causing him to sink in despair, and succumb to the most trifling difficulties. In this way then we may see how needful the *corpus sanum* is to the *mens sana.*

The conclusion at which we arrived in the former Section, was that the body may suffer from the effects of a depressing emotion; and that at which we hope to arrive in this latter Section is, that the emotional mind may suffer, 1st. From an *exhausted* condition of the nervous system, and especially of the sympathetic

division of it; or, 2dly. From a *disordered* condition of the sympathetic system, inducing a flow of morbid emotions, which have an injurious effect on the other mental faculties.

These points then form the subject of the present division of this article, viz.: "The various mental effects produced by a diseased or exhausted condition of the visceral system of nerves, and the lesions of the viscera which lead to these morbid conditions of the nerves."

CHAPTER II.

DISEASES OF THE DIGESTIVE ORGANS.

As we said before, the digestive with the generative system forms the most interesting field for the study of emotional disorder. On referring to our remarks on the influence of the emotions upon these organs, it will be seen how powerful this may become in producing disease. We shall now proceed to quote examples in order to show, conversely, how the emotional mind may become affected by disorder of the digestive organs. And having shown, 1st. That emotions affect these organs to a very marked degree; 2d. That emotion is felt chiefly in situations where sympathetic ganglia abound; 3d. That the effects produced by emotion on the viscera are attributable to the action of the sympathetic nerves; 4th. That disturbance in organs supplied by sympathetic nerves is accompanied by emotional disturbance; we shall have gone far to establish the theory of emotional diseases on which this article is built.

" A lady of strong mind, equable temperament, and high moral character, is subject to sudden attacks of indigestion after eating a heavy meal; during the attack she becomes highly nervous, and a host of fears and apprehensions suggest themselves to her mind.

For some years she thought these attacks were of purely mental origin, and was grieved accordingly; but in time she observed that she was in her usual happy frame of mind *when free from dyspepsia*, and that she became perfectly relieved (in her mind) as soon as each attack had passed away. Having gained this experience, she can reason on her fears and depression even when suffering from them, and can attribute them to their right source; in fact, she understands the nature of her depression of spirits, and her mind is at ease on the subject."

"Again, Mr. H. has from time to time been the victim of the most tormenting fears and depression with a tendency to cry, and a most distressing sensation of fluttering and sinking at the epigastrium; the tongue trembles and the hand shakes, while his countenance expresses a most dejected and pitiable state of mind: all this occurs without any known mental cause (he is wretched about nothing), but it is fully accounted for by the disturbed state of his stomach, and obstinate constipation of his bowels. That this is the case is confirmed by the fact that relief can never be obtained till the bowels have been opened, and the secretions put in order; when this is done, the man is cheerful and happy."

T. P., an old man of strong and clear intellect, with whom the things of this life run smoothly, says, "That many years ago he received an injury to his foot, which confined him to the house for some weeks, during which time he was seized with a morbid idea that his soul was lost, although previous to this time

he had enjoyed the comforts of religion. This, and a host of other fears beset his mind and tormented him for some time; he, however, fully recovered, till fifteen years after, when he partook largely of ox's heart, which disagreed with him, and from that time he has been a prey to morbid depressing emotions. Sometimes he has intervals of ease and comfort, but is again seized by his morbid fears when the digestive organs become deranged." His digestive organs are now weak and easily deranged, but otherwise he is still a healthy man.

These cases illustrate, beyond all doubt, that a state of nervous trepidation and mental depression from groundless fears may be induced by disorder of the digestive organs. We have here persons of even temperament, sound mind, and good character, rendered for the time a prey to tormenting fears without foundation, crying with a sense of distress, and entertaining thoughts which at the very time were known to be absurd, and to be caused by indigestion. The state of the digestive organs in each of these cases seems to have depended on weak and sluggish action. We have notes of other cases showing that flatulence causes the same state of things. For instance, one man, "greatly disturbed by flatulence in the stomach, and distressed low feeling," says "he is at once relieved by a little aromatic medicine which brings the wind off his stomach;" and a woman often complaining of a sudden feeling of low spirits, obtains instant relief by the escape of a large quantity of flatus. In women, whose uterine functions are perfectly healthy, symp-

toms of emotional disorders often occur in connection with a loaded state of the colon, and a disordered stomach. They may "fret about nothing," complain of imaginary evils, take false alarm at every turn, and undergo a torture from evil forebodings, which resist all the moral means that can be used to remove them, and they find no relief till the digestive organs are relieved.

E. M., a lady whom I know well, has for some time suffered from the above symptoms, more or less, and is in constant dread of a cancer in the throat. She is unable to throw aside her fears, and looks into her throat many times daily, to be re-assured that "there really is no cancer." In spite of this, however, and in spite of all persuasion from her medical attendant and husband, she persists that her throat is diseased. Caustic has been applied, and many other remedies used, but all to no purpose. "The sensation of cancer still remains." On seeing this case for the first time, I examined the throat carefully, and found it to be quite healthy; but on examining into the state of the digestive organs I found them loaded, the tongue foul, and the bowels constipated. By adjusting the diet, exhibiting aloetic purgatives, with nux vomica, and an acid stomachic mixture, I completely relieved her in about ten days. *All her fears disappeared*, her mind became easy, and her throat disease was forgotten. As a proof that this was the result of treatment, I may say that some months afterwards she returned to me in the same state as before, and was easily relieved by medicines of the same kind.

This fear of "diseased throat" is by no means uncommon; I have notes of several cases in which it has occurred. It seems to me to depend upon a hyperæsthetic condition of the nerves supplied to the pharyngeal mucous membrane, a condition which frequently accompanies emotional excitement.

Having by these examples shown the existence of disturbed emotions resulting from disorder of the digestive organs, we now proceed to speak of these organs severally, and especially of the stomach and liver.

STOMACH.—We have already quoted instances of flatulent distension of the stomach leading to an abnormal depression of spirits or nervousness, and have shown that simple aromatics have acted like a charm in removing this flatulence, and with it the emotional disturbance. We have also expressed the opinion that during some kinds of emotional distress gaseous secretions take place from the mucous membrane of the stomach. We would now refer especially to another very constant and distressing symptom occurring in that form of dyspepsia which produces the greatest emotional distress, viz., the sensation referred to the same region as emotion, felt most acutely when the emotions are excited, and by its presence apparently predisposing the subject of it to the inroad of feelings most morbid and depressing—a sensation which seems sometimes to suggest groundless fears to the mind, and tends to concentrate the attention upon the organ near which it is seated, till alarm is taken at disorders which, if unheeded, would be of very trivial conse-

quence. Then the organ becomes in its turn still more disordered, and by the mutual influence between body and mind the sensation and its accompanying emotional distress render the sufferer most miserable, dejected and helpless. The sensation to which I refer is described by some as "a sinking at the pit of the stomach," by others as "a want or a weight felt there," by others as a feeling "as if they would die," as a fluttering or a soreness, or, indeed any shade of perversion of that internal visceral sensation of health or good spirits which, as the normal substratum of the emotions, is described in the first division of this paper. All this we unhesitatingly affirm to be the result of an exhausted, paræsthetic, or irritated condition of the sympathetic nerves supplied to the stomach; and we believe that the different terms under which it is described are a clue to the particular disturbance present. The sense of want and a deficiency of resisting power, is indicative of an exhausted condition of the sympathetic centres; while a sense of soreness, uneasiness, distress, or of nervous excitement, indicates various degrees of irritation or excitability of those centres. These states of the gastric nervous system connect themselves with similar states of the organ itself, which states of disorder, we shall find, arrange themselves under two varieties, the one a state of irritation, the other a state of exhaustion.

The 1st. *Gastric irritation*, includes cases of gastric catarrh and congestion; cases where the stomach is irritated by the presence of bile, or by the products of fermentation, such as Butyric and Lactic acid, or,

more commonly still, by the presence of undigested food.

This state of *gastric irritation* is met with in the dyspeptic man of irregular habits, or in him who is imprudent in his indulgence in food and drink. Any form of diet, occupation, habit of life, or distress of mind which engenders dyspepsia, *predisposes* to it, and induces (in addition to the general symptoms of such a state of the stomach), symptoms of a decided emotional character. In these cases the temper of the dyspeptic often becomes soured, self-control becomes diminished, and the mind becomes apt to take a sharp inconsiderate view of things. During such a state of the stomach patients will pass through seasons of the greatest irritability, alarm and fear, without being able to assign any adequate cause for these. Hours will pass when to their own consciousness and to that of their friends these persons are unlike themselves—"not in their usual way." And if the dyspepsia be long continued, temper, disposition and general bearing may become completely altered, till he who has been remarkable for an even temper and calm, considerate judgment, becomes much more remarkable for his morbid irritability and inconsiderate acerbity.

The 2d. *Weakness of the organ*, leading to deficiencies of its digestive powers. The weakness may result from *loss of nervous power*, from deficient quantity or quality of gastric juice, or from a want of muscular tone. This state of the stomach often connects itself with the weakness of hard worked suckling women; often generates in them a tendency to nervous trepida

tion and fear, and is accompanied by a sense of want, or weight, or sinking, with a fluttering in the cardiac region. Young women suffering from anæmia, who are not hysterical, are often sufferers from this, which we may term *Gasteria.* It may complicate the nervous symptoms present at the change of life, and is generally connected with a mobile state of the system.

Liver.—A disordered condition of the liver, entailing, as it does, disorder of all parts from which the portal blood is derived, has been for ages acknowledged as the chief cause of mental depression. Volumes might be written and have been written upon the various phases of this "Hypochondriasis." The emotional depression of jaundice, being accompanied by loss of energy of the other mental faculties, proves that the existence of bile in the blood is one fruitful cause of these symptoms; it is therefore important to remember that the cerebro-spinal nerve-centres may be poisoned or injured by this secretion.

The kind of emotion which is produced by hepatic derangement is not of a highly sensitive nervous type, but rather of a dull, heavy, morose nature, causing the patient with a "jaundiced eye" to take a gloomy view of everything and everybody, to become suspicious, apathetic, cantankerous and sad. In such cases all the cares of life press heavily, for the patient cannot rouse himself to meet them, and almost any extent of despair or morbid mental condition, short of insanity, may be reached. Lassitude and an accession of low feelings are very common after a hearty meal, about the time when duodenal digestion ought

to begin. The spirits, low in the morning until tea or some stimulant is taken, are usually better in the evening. Such patients often awake with a horrible sense of weight and depression of spirits, feeling no better for their sleep either in body or mind, and a melancholy "nausea of life" damps every feeling of energy for the day. These symptoms, and such as these, are very often due almost entirely to derangement of the liver, and are well known to disappear when appropriate medicines and other treatment have rectified the functions of that organ.

We have notes of cases not unlike the following, dependent on deranged and sluggish action of the liver. Captain A. has often come to me in great fear about himself, imagining that he is the victim of many terrible complaints; he sometimes feels quite well, but as soon as his bowels become disordered and his liver inactive, his spirits become depressed, and he is very anxious about affairs of trivial importance. He says that he (with several other seamen whose ships trade with Spain) can assure me that as soon as he passes Cape St. Vincent (which seems to separate the temperate climate of the north from the hot climate which prevails in Spain), he is certain to have the above attack, accompanied by symptoms of congested liver; and while in Spain he is never out of the Spanish doctors' hands. So nervous does he become that if he coughs he cannot be easy in his mind till he has examined the sputum, and satisfied himself that he is not in a consumption. He has often declared to me that he would give all he possessed if

he were certain at these times that he was free from disease.

Gout, both in its acute paroxysms and in its latent form, is very injurious to the nervous system, and developes many curious conditions of the mind. During the paroxysm, these conditions are generally of an exciting, irritating nature, leading to sharpness of temper and disposition. Latent gout leads to depression of spirits, and very serious impairmemt of nervous power.

CHAPTER III.

GENERAL REMARKS ON THE MODUS OPERANDI OF DYSPEPSIA PRODUCING EMOTIONAL DISTURBANCE.

If we were asked the special utility aimed at in writing upon the subject of this article, and if we could furnish no other reason, we should deem the attempt to relieve that vast fund of mental suffering which depends upon disordered conditions of the digestive organs to be sufficient, so great is the distress often felt by the victims of these disorders.

These conditions of the digestive organs often play a serious part in "shattering the nerves" of men who were once remarkable for their strength of will and power of mind. True, these have generally been a prey to hard work entailing mental anxiety, but this very anxiety reacts upon the mind by the injury it inflicts upon the digestive organs; for it is through the influence of these that the mind and its emotions become diseased. In such cases we find that all self-reliance and self-possession are gone, and their place is taken by vacillation, timidity, and inability to make up the mind on the most trivial questions. We have known one gentleman to pass a day of torture in making up his mind

to post a letter, another unable to bring himself to seal a letter, and we have heard of a third who spent a whole day in writing a satisfactory epistle. This state of things is most trying to the patient's friends, and its removal generally resists their efforts; nevertheless, it is within the range of improvement by medical, regiminal, and hygienic treatment. I might quote many cases to show how the digestive organs, when they are disturbed, disturb and unhinge the mind too. "A woman attending the Newcastle Dispensary is in continual dread of death, and many other evils, and she can never get them off her mind till her constipated bowels and flatulent stomach have been relieved by a few doses of Dispensary Mist: Purgans with Asafœtida." "A student of medicine, who was most miserable and dejected in Paris, found himself 'all right' on returning to England, and on reviewing his case, attributed it entirely to the influence of the constant dyspepsia entailed upon him by French diet and hot weather."

"John Sutherland is under a constant impression that he will *die*, and this is kept up by a sense of distress at the epigastrium; he is treated by means directed to the digestive organs, and he gets well of the distress and the fears too." It often happens that where any great evil has once threatened a nervous patient, he is certain to fear its recurrence when the stomach is disturbed. The mind sometimes becomes diseased by having its attention constantly occupied with the stomach and its disorders, or what is more trying still, by dwelling upon other imaginary dis-

eases. The patient fancies he is ill. If the heart palpitates he imagines it is diseased; if the abdominal aorta should be felt to pulsate, he will imagine there is disease there; if a deposit of urates be seen in his utensil it is construed into a disease of the kidneys, and so on, till with weakened nerves, a mind full of terrors, and a body supposed to be at fault, the poor dyspeptic becomes a creature to be deeply pitied.

All this nervousness and misery exist without any real mental cause, and they exist so constantly in connection with disorder of the digestive organs, that it is impossible to avoid the conclusion that they bear to each other the relation of cause and effect; and yet, on the other hand, there are many very decided diseases of the digestive organs, in which there is no disturbance of the emotions, and there are persons who do not suffer from depression of spirits when the digestive organs are disordered. Very much, as we have before stated, depends upon temperament. and temperament is doubtless connected with the particular mould or constitution of the nervous system. It is therefore of great importance to note first, the kind of disorder which does, and the kind of disorder which does not, produce depression of spirits; also the particular type of nervous temperament most subject to these attacks.

We will here venture to explain our views as to the nature of these cases of intense mental suffering from disturbed condition of the visceral nerves.

It would seem that the digestive tract may be seriously irritated as regards its sympathetic nerves,

when no great amount of irritation in the ordinary sense of the word, exists. Such a paræsthetic or hyperæsthetic state of these nerves seem to excite morbid emotion rather than pain or other sensations indicative of ordinary irritation in the part, and this is done chiefly by destroying the quality of that *visceral sense*, which is, as we have said, the substratum of the emotional states. In irritation of these sympathetic nerves then, we see that one of their special functions is at fault; and that function alone may suffer, just as in some affections of an organ of special sense, such as the eye, we find alteration in the special function of its nerve to be the first and only indication of disease.

We may convey to the reader's mind the best idea of this by referring to an hypothesis which has sometimes served us good purpose in studying these diseases; it refers especially to the manner in which emotions, rather than ordinary sensations, are excited by the sympathetic nerve.

We will assume that the *Will* excites a force which manifests itself in muscular movements, and this force generated in the cerebro-spinal system, *travels along the cerebro-spinal nerves*, and manifests itself in muscular movements of a voluntary nature; again, irritation of the cerebro-spinal nerves is conveyed to the brain, where it is received as a *sensation*. We aver that emotional impulses, on the other hand, *travel along the sympathetic system* of nerves as well as the cerebro-spinal, and so doing manifest themselves in various changes in the functions of the abdominal viscera.

Conversely, an irritated or disordered condition of these viscera, producing irritation of their nerves (the sympathetic nerves), does not lead to a sensation of ordinary pain, but to an alteration of the "*emotional sense*," inducing an *emotional state* different from that of health.

It is this latter condition to which we refer. The intestinal nerves become irritated, or the nerves of the liver may be affected by a disordered condition of its functions, the nerves of the stomach likewise may partake in the same state of things, and the whole of that part of the sympathetic system may thus get into a paræsthetic, a hyperæsthetic, or hypæsthetic condition, as the case may be, which powerfully predisposes the patient to the inroad of feelings of depression or apprehension, robs him of self-confidence, tone and courage, makes everything a burden and a difficulty before which he sinks, destroys the best of tempers, changes the most amiable into the suspicious and unforbearing, blunts the ablest intellectual faculties, takes the zest out of the most favorite pursuits, and renders the poor sufferer a prey to the most distressing emotional excitement or depression. I have known the character to be thus most materially changed not so much as to principle but as to manner and feeling, and those who were once the most loving, most pleasant, and acceptable of men to become cantankerous,* depressed, and burdensome to their dearest friends and relations.

* I use the word "cantankerous" simply because it conveys the idea of a state of mind to which no other word applies.

CHAPTER IV.

EMOTIONAL DISTURBANCES DUE TO DISEASES OF THE ORGANS OF GENERATION.

Before proceeding to the consideration of the special diseases of these organs, we would note their close relation to the emotions and appetites of both male and female. Indeed, their purely *sexual* functions we have seen to be dependent on the appetites, and their accompanying emotions, for their full manifestation. In the case of the female, the pathological condition of her sexual organs, which affect the emotions, are more numerous and more important than in the male. This is due, no doubt, to the nature of her many functions which powerfully excite the instinctive feelings of the mother and the wife.

If proof of the relation of the emotions of the bodily condition of the subject of them were needed, it would be found most satisfactorily in the development of passion and affection during the periodical excitement of these organs in men and animals; in the former puberty, and in the latter *the period of heat* are distinctly the occasion of sexual passions and emotions.

To commence our remarks let us direct attention to those conditions of the female organs which distinctly induce sexual desire, and then we shall pursue our inquiry concerning the emotions similary induced.

Nymphomania, for instance, is a disease involving morbid excitability of the lower attributes of human affection, by which the mind is led to be filled with desires naturally in abeyance, and it is due to an excited state of the external organs of generation. The presence of ovarian irritation, as we shall see, may lead to similar results. In the female the practice of masturbation is not uncommon, and in some cases the tendency to the habit becomes so strong as to constitute a disease which is dependent on a morbid irritation of the clitoris and adjacent parts, and which is curable by removing that organ or subduing its irritability.

The primary or immediate effect of this practice being to excite, or rather to gratify erotic thoughts, we might naturally expect an excitement of kindred emotions as the consequence, but the emotions which ultimately result from the practice are of a very different nature, such as fear, timidity, nervousness, and apathetic depression of spirits, and other feelings which can be accounted for by the disordered and exhausted condition of the hypogastric ganglia presiding over these regions. The distressing effect of this disease on the spirits is so closely allied to what occurs in the male who masturbates that we shall defer its further consideration till we consider the male organs of generation.

Passing from these conditions to that more general condition of the nervous system called "Hysteria," we need not stay to remark upon its dependence on disorder of the uterine organs; for we have before shown these organs to be influenced by emotion, and we have also seen them to be the occasion of the most disturbed emotional conditions, leading to hysteria. We expressed our belief that hysteria generally depends upon the mutual reaction which exists between the mind and body through the sympathetic nervous system. By this, the too active play of emotion, whether exciting or depressing, produces a disturbed condition of the sexual organs, which affects their nerves so powerfully that the sympathetic centres from which the nerves are derived may become disordered. The vehicles of emotional force, thus rendered *unfit* to carry healthy impulses, are on the other hand excited to produce an unhealthy condition of the "emotional sense," and thus to modify the character of the emotions to no small extent. In this way the unoccupied minds of young women are doubtless subjected to an unnatural excitement by unhealthy emotions when their sexual functions become disturbed, and the result is that state of mind and body which we call "hysteria." It would be impossible to specify any one disorder of the sexual organs which acts in this way, or from which hysteria is thus derived. All affections of parts supplied by sympathetic nerves lead to it, but especially affections of the pelvic viscera, such as congestion or sluggish action of the uterine system, and difficult, scanty, or profuse menstruation.

In the hysteria of anæmic subjects, the poverty of blood doubtless adds its quota to make up the attack, through the loss of tone in the nervous system engendered by the imperfect supply of nutritive matter.

The other emotions (*not* of an erotic nature) which are excited by disorder of the sexual organs will now be considered.

CHAPTER V.

THE CHANGE OF LIFE.

While the state of mind developed during the first change of life *in youth* is sometimes most distressing, it is not to be compared in this respect to that attendant on the second "change" peculiar to advancing years.

Inasmuch as the former has been fully described in many works, while the *latter* has not been so fully noticed as it ought, we propose to dwell on it more at length. We will therefore dismiss the new emotions and their early outbursts in the breast of the young maid, and turn our attention to the curious mental states which accompany the departure of the child-bearing function. In doing this, we propose in the first place to allude to the various bodily symptoms which occur at "the change," showing that they for the most part are due to a disordered condition of the visceral system of nerves; and then to examine the mental phenomena which accompany these conditions.

1st. *Flushes.*—Women who have been of cool temperament, and whose nervous tone has enabled them to control expression of feelings with the greatest ease are at the change of life surprised to find that in spite

of every effort, and at seasons most inopportune, a sensation of heat, arising generally in the epigastrium, will diffuse itself over the whole surface of the body. This is accompanied by flushing or redness of the cutaneous surface, and is most apparent in the face, neck, and hands. When "the change" is accompanied by any untoward circumstances or conditions, these hyperæmiæ become most distressing, and are greatly aggravated by the peculiar nervous condition of the subject of them. It may be argued that this is merely the diffusion of blood which ought to have been lost in another direction. This we admit, but for such a diffusion we know that a certain condition of vessels is necessary, and this condition we know to be dependent on the control of the sympathetic nervous system, so that after all the latter must be in a peculiar state or the symptoms would not occur.

We need not say that Bernard's experiments sufficiently prove that a "want of tone," leading to a partial paralysis of the sympathetic centres, is the condition to which we allude. It leads to occasional loss of control over the capillaries or small arteries, on the occurrence of which a wave of vascularity passes over the surface and exists till the nervous centres have once more regained their tone.

2d. *Perspirations* of the face and hands are most common and distressing to females at the change of life, and are doubtless due to similar states of the arterial nerves, which are derived from ganglionic centres.

3d. *Sensations* in the epigastric region are often

most common and trying to the patient, especially as they so commonly connect themselves with emotions of various kinds. The chief of these sensations are a fluttering, accompanied by a sense of choking or dysphagia, and a feeling of faintness while the heart's action is good and regular; on which account the sensation is rarely the precursor of an attack of syncope. While the absence of pain in the region of these sensations is against their being of cerebro-spinal origin, our present knowledge justifies us, because of their nature, relations, and seat, in ascribing them to an exhausted or irritated condition of the semilunar ganglia and solar plexus of nerves.

4th. The organs of digestion suffer from sympathy, and aggravate these symptoms, the bowels become sluggish, the liver torpid, the stomach easily disordered; the heart's action is sometimes feeble, and the circulation so languid as to give the impression that stagnation of blood occurs in parts; at other times the heart palpitates, and this worries the patient by a fear that the disease is there.

5th. Other sensations of various kinds occur, *e.g.*, creepings, heat, cold, feelings as if a hand were being applied to the back, tinglings in the fingers and face, pulses in various parts, fidgets, shiverings, &c., all betokening a curious condition of the nervous system, for which as yet we have no name.

Now, accompanying all these bodily phenomena, there are various mental states which cause them to assume an importance (in the mind of the patient) so great as to make "the change" one of the most trying

of the ordeals through which woman has to pass. An epoch in her history when mind and body are disturbed together, and when the former, thus unhinged by the latter, is, as it were, almost overwhelmed by its burdensome condition.*

It will therefore be important to see what mental phenomena accompany these various symptoms which are dependent on disorder of the sympathetic system of nerves. For instance, during the accession of heat and flushes there is often developed an inward nervousness which is intensely painful to bear. In such cases, when in the company of others, the poor woman becomes flushed in the face and nervous, grows slightly confused. fancies everybody is looking at her and closely observing her, attributes this to their curiosity or impudence, and imagines they think her flushes are due to some secret indulgence in spirit-drinking.

She then shuns society and seeks solitude, there to brood over all sorts of imaginary evils, and to yield to the conviction that she is the victim of some terrible malady. When the heart palpitates she often imagines it is diseased, or, if the head be light, that there is mischief in the brain. The back and loins are often the seat of pain, and its endurance is a source

* We shall not dwell upon the various forms of insanity developed at this period; they belong to another department; for, we repeat, emotional disease will always be found to differ from insanity in one or two respects. 1st. However great the apprehension of unreal evils, or however strong the temptation to believe in evils which do not exist, there is no delusion as to facts which are patent to ordinary observation. 2d. It is rather the misinterpretation of facts, and taking false alarm at little things which constitute the disease. This distinction is most important in a medico-legal point of view.

of many anxious fears and alarms. Persons with the above symptoms not unfrequently conceive a great dislike to those with whom they were once on terms of greatest friendship; they become jealous and suspicious of those very near and dear to them; they harp sometimes on *one* string of evils; at other times everything is wrong with them. They may at one time suffer from distressing excitement, while at another the most gloomy depression sets in. The temper once amiable, becomes most fretful and trying to those with whom the patient lives. We have known a lady of very high character who within the last two years has become a perfect tyrant to her sister, and who spends some hours every morning in vapid thoughts and useless complaints; this state of things is always worse when the bowels are confined, when the stomach is disturbed, or when the uterine system is out of order. The change which sometimes occurs in the marvellous powers of endurance possessed by women is most marked. Giving way to fears about nothing, fretting continually, greatly annoyed by trivial complaints, they seek for sympathy from those who cannot enter into their feelings or understand their case, and failing to obtain this, they become still more cast down.

Too often their medical attendants ridicule their complaints, ascribe it all to fancy, and refuse to treat them; and though it is quite right to ridicule the imaginary diseases complained of, and to labor to convince the patient that no serious disease exists, yet the practice of ignoring the existence of the dis-

ordered condition of the nervous system, and of refusing to treat *it*, is to be condemned. I would not dwell on things apparently so trivial as these, had I not seen some of the worst misery this world witnesses induced thereby. The conviction that this is the result of mere bodily infirmity ought therefore to nerve the physician to its investigation, treatment, and cure.

The following are the conditions of the uterine organs which cause much mental mischief, and at the same time induce the train of symptoms before indicated:—Leucorrhœa, ulceration of the os uteri, prolapsus uteri, and other displacements of the organ leading to congestion. Other conditions allied to these frequently occur. For instance, it not unfrequently happens that after her confinement a female finds herself suffering from pains in the right or left ovarian region, with aching in the back and loins. At the same time there is a burning heat felt in the neck of the uterus, a thick yellow discharge makes its appearance, and on examination a congested and ulcerated condition of the os and cervix uteri is revealed. The patient then feels her spirits begin to droop, everything becomes a burden; fears and apprehensions occupy her, and she, looking at the dark side of all her symptoms, and imagining herself to be seriously ill, becomes very apprehensive as to her own safety and that of her child. Sometimes hysterical symptoms manifest themselves, and frequent outbursts of tears are the result. Life becomes weary and a burden, and she is found to be in a most pitiable con-

dition. With all this there is that sense of "faintness or want" in the region of the solar plexus, which indicates its weakness and disorder. Such a letter as this not unfrequently reaches the medical attendant: —"Sir, come immediately to me. I have become miserable, and I am afraid I shall never be better. What will become of my poor children? Is there nothing to cure me? I am very ill and distressed." A cloud thus hovers over the mind, and nervous perturbation succeeds, with a sense of alarm at nothing.

We have seen that mere leucorrhœal discharge may induce this state of things in a minor degree, and prolapsus uteri is on this account one of the most distressing maladies. Often with tearful eye and sobbing breast has the victim of depressing emotion confessed to me that she suffered from a "bearing down or fall" of the womb, and to her surprise has been assured that her depression of spirits resulted entirely from her uterine affection. And many of these cases have seen most striking relief afforded to the mind by treatment directed to the uterus, *e. g.*, the use of a comfortable pessary has on some occasions entirely relieved both mind and body. I specially allude to this because all these uterine affections are seriously aggravated by the congestion produced by displacement of this organ.

Miscarriages frequently determine a course of suffering in the life of a female which affects both mind and body in a most mysterious way. The nervous system becomes completely unhinged in some cases, and actual insanity results; in less severe cases,

hysteria with depression of spirits, love of solitude, and timidity when in society, mark the disordered condition of the mind. The system of nerves peculiarly involved in these cases is the sympathetic, for although the cerebro-spinal system suffers, it is entirely because of its connection with the sympathetic system; and treatment to be of any avail must be directed to this latter system. We may remark that the disordered action of the colon which so frequently connects itself with these cases, is probably due to the ganglionic sympathy between it and the uterus, for no two parts are more fully supplied by sympathetic nerves, and both readily respond to the exercise of emotion. Diarrhœa with dysenteric symptoms, but more frequently constipation, are the conditions usually engendered when the colon becomes involved in the diseased action. The suffering from these disordered conditions of the colon tends to unnerve and alarm the patient. They alarm by the pain and burning heat in the colon, also by the discharge of mucus, pus, and blood; they unnerve by keeping up disease of the hypogastric centres of the sympathetic system.

CHAPTER VI.

MALE ORGANS.

Passing now to the diseases in the male organs of generation we shall consider that aspect of masturbation which consists of the mental distress resulting from the bodily excess.

Let us here note the gradation which exists between the ordinary sense of touch and mental emotion. The sense of touch is not far removed in its nature from the sense of taste, which is one of the special senses liable at any time to be excited, and to lead to over-indulgence in the pleasure it affords. But more closely connected with emotion, giving rise to, it and easily excited by it, there is the sexual appetite or sense, which is still more powerful in making its votary the victim of its excessive indulgence. When the sexual sense is indulged by unnatural means without its proper emotional stimulus, the nervous centres which have to do with the functions of the generative organs (the secreting functions) become weak and excited. At the same time, from a variety of causes, the cerebro-spinal system becomes exhausted; intellect, reason, and power of will diminish, the man becomes ruled by depressing, morbid *emotion*, and is the victim of an un-

naturally excited* appetite which impels him forward in spite of reason, conscience, advice, threats, and warnings. Such an one then presents himself to the physician a deplorable wreck in *mind* and *body*. Both are weak, both exhausted, the one under the influence of emotions most morbid, the other the victim of an excited feeling or impulse which is driving the subject of it secretly to destruction. We need not here rehearse the fears, anxieties, and distress by which the charlatan is enabled to practice on his weakness; nor is it necessary to dwell upon the various functions which become disordered; the palpitating heart, the trembling hand, the shy and skulking expression of eye and countenance, the coated, trembling tongue, the constipated bowels and impaired digestion from feeble secreting power, all go to make up the sum total of this wretched state of things.

Another condition engendering much mental distress is that which follows the occurrence of venereal disease. In these cases, as we shall see, the mind is already predisposed to the fears and depression of which the nervous system will soon be the ready vehicle. Gleet is often the source of vast mental distress to young men; by it the attention is kept on the disease, and thus, I believe, it is often prolonged, while the mental system becomes nervous, apprehensive, and even suicidal; the mind seems ready to be influenced and absorbed by the fear of disease.

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* The relation between the appetite here spoken of, and emotion, is explained in the remarks on female masturbation.

Stricture, in some cases, establishes a variety of mental disturbances.

Worse than either of these, *Syphilis* is not unfrequently the source of much mental suffering. Arousing the emotional system by the alarm it creates, together with the deleterious effects of the disease, and perhaps with mercury to aid, it establishes that curious condition, Syphilophobia, which preys upon the spirits, energies, and life of many. This unfits them for important duties which, if accepted and fulfilled, would have made them men of power and influence. Thus their prospects are often blighted; they fail for want of nerve, confidence, and courage; and these they have not, because they are taken up with selfish ailments, and have their life eaten out of them by anxiety and depression about a phantom idea, an unreal evil.

Some of the most distressing instances of depressed spirits result from exhaustion of the nervous system due to venereal excess in early life. As years advance, such men become the victims of a curious debility of their nervous system, showing itself in a loss of interest in their favorite pursuits, an inability to contend with difficulties, apprehensions of poverty, &c. In these cases, oxalic acid or phosphates often abound in the urine.

CHAPTER VII.

TREATMENT.

THE treatment of these affections naturally divides itself into two parts, one of which is connected with the earlier portion of this Essay, and involves the consideration of the means for preventing and curing the ill effects of severe or injurious emotions; the other belongs to the latter division of our subject, and has to do with the treatment of those diseases described as inducing emotional distress. In making this division, let us not fail to recognize that, whatever tends to remove diseases producing emotion, will, in most instances, be one of our best safeguards against the injurious effects of emotion when it necessarily exists.

How are we to prevent severe and injurious emotions from damaging the bodily functions, and how are we to remove such injury when it has been inflicted? To the former part of this question we find an answer on referring to the many causes which have been enumerated as encouraging the inroad of morbid feelings, and depression of spirits. These causes, if possible, are to be avoided.

We cannot here enter upon individual cases, and show how each must be met by advice directed according to the cause and subject of the suffering; our province is, as we have indicated, to deal with those general conditions which intensify emotional distress, and to show how they may be avoided so as to prevent mental suffering from becoming the cause of bodily disease. For instance, solitude often tends to increase a sorrow by allowing the mind to dwell too much upon it; and the habit of doing this, so soon acquired, is with difficulty thrown aside. Want of occupation sometimes operates in the same manner; therefore both of these conditions must, if possible, be removed.

The solitary man or woman will find the opening of the heart to a confidential friend to be its best relief for pent-up sorrow, and the pleasures of agreeable society will greatly relieve its sting; the unoccupied man will best drive away his fears and distress by getting his mind thoroughly occupied in some engrossing pursuit. Let him try "the expulsive power of a new affection."

Persons who have been disappointed in marriage are often ruined in health and spirits for a time. Where a chance of a new tie exists, let it be formed, or where the old longed-for affection can be renewed, let it be so. I have known a poor girl made most seriously ill from dejection of spirits (accompanied by chorea), all resulting from the breaking off of a much cherished engagement; in this instance, an immediate cure followed its renewal. Cases must be dealt with

according to temperament; but, *in all*, let it be remembered that the old idea of persons being able to shake these things off by an effort of their own, is a false one. It is not in them to do this. They must be assisted by the sympathy of friends, the consolations of religion, a cheering prospect, and some wise, considerate scheme or plan by which a change of air, of scene, or, better still, of society and mode of life, may be secured. The great thing is to remove or diminish the emotion before it injures the body, or sets up a disease which will perpetuate the evil. I believe many go on suffering because of this, long after the original cause of grief would have ceased to trouble them, had they taken means to prevent its injurious effects on the nervous system.

There are some persons on whom emotion tells with special power, and these ought to be spared bad or sudden news of any kind. Convalescents from severe illness are often very nervous; even a tap at their door may shake them, so that anything of a more serious nature, to speak figuratively, shatters them. Pregnant or suckling women are to be protected in the same way, and in such cases the mind should be prepared for startling news or shocks.

Further, it is of great importance to regulate the functions of the body by medicine, when times of mental trial test its strength. The functions of the stomach, liver, and bowels claim special attention. The bowels must be cleared out, the liver kept in action, and any irritability of the stomach at once corrected. If the digestive organs be weak, they must be strength-

ened by appropriate tonics, such as shall be indicated hereafter. When the mind has been overworked by anxiety, and the body shattered as a consequence, medicine alone will not effect a cure; such will need the invigorating power of a bracing sea air, or an alterative and tonic course of mineral waters at some watering-place like Harrowgate or Aix-la-Chapelle; and to these, we repeat, must be added the genial influence of agreeable society and amusing pursuits. In such cases, partial change will do but little good; there must be a complete removal from all the cares and anxieties of life—a change of scene and society into which the invalid must not carry his anxiety with him, but leaving all behind, enter, as it were, on a new phase of life. As will be shown hereafter, the use of cold water in various ways will prove very beneficial. Cold shower-baths, or sponge-baths, in some cases sea bathing, and in others cold water sheets and compresses to the epigastrium (and even the application of ice to that part) prove most beneficial. Such measures, however, will avail but little, while the diet is improper or irregular. At these times, if the patient be plethoric, a light, non-stimulating diet will be necessary; and in cases with constipation it should also be of a somewhat laxative nature, consisting of preparations of oatmeal, gruel or porridge, as opposed to the heavier and more constipating farinaceous foods.

In all cases of exhaustion or weakness, a well adjusted nutritious diet is absolutely necessary; it must, however, be free from all indigestible substances such as cheese, pastry, dough puddings, ham with its dried

and hardened fibre, &c., &c. Stimulants will be needed in some cases, and must be carefully avoided in others. When the bowels are loose and the system weak, brandy, especially after meals, or as an aid to sleep, is most useful. Tea, coffee, and even tobacco, may be used with benefit as *occasional restoratives*, the two former when the system is depressed, the latter when excitement prevails. In speaking of the medicinal treatment of emotional diseases, we shall discuss the virtues of the various medicines to be used; let us here allude to the most salient points of medical treatment during a period of emotional distress.

Sal volatile, and other spirits of ammonia, with chloric ether are useful as diffusible stimuli in cases of great depression; they afford temporary relief, *a most important point*, the advantage being that we limit the duration of this depression, and thus prevent it from injuring the body.

Camphor, as spt. camphor, or camphor julep, is also useful in such cases; and musk or hyoscyamus, afford the nervous system useful aid at such times. The disturbed state of the digestive organs is best treated by mild alteratives: in cases of weakness with irritation of the stomach, it might be well to combine the spirits of ammonia, or potash with bismuth and hydrocyanic acid or the tinctures of rhubarb and cardamoms with hyoscyamus and some vegetable bitter. The mineral acids are at once aids to digestion and tonics easily borne by the system.

It will be most important at such seasons to detect the weak points of the particular system we have to

deal with, and to direct our treatment accordingly. Thus the liver, the heart, and the uterus will chiefly demand our attention after the claims of the stomach have been attended to. The liver will need special attention, and, according to its condition, should be gently or powerfully acted on by blue pill or podophyllin, followed by the nitro-muriatic acid and dandelion. The heart's action must be regulated by digitalis, chloric ether, ammonia, hyoscyamus, or green hellebore. Sulphur, hip-baths, &c., will have their effects on the uterus fully explained hereafter.

The few indications we have here laid down will be enough for tiding a patient of ordinary type safely through a season of great mental distress, anxiety, or grief; there are many other details of treatment which remain to be mentioned; but our space will not permit us to enter on their consideration.

The treatment of emotional disorders of course involves the treatment and removal of those diseases by which they are specially induced; it would, however, be altogether beyond the province of this article to go into detail on the various means to be used for removing diseases, such as dyspepsia of various kinds, leucorrhœa, or hysteria, all of which should be treated by the usual means; we shall, therefore, deem it sufficient for our purpose to speak of the action of the various drugs which influence the (sympathetic) nervous system, and through it, the emotions.

Stimulants.—Sal volatile and other spirits of ammonia are often most useful; they not only rouse the nerves of the stomach, but, being diffusible stimuli,

excite the whole system, and thus often become the means of dispelling a fit of depression or nervous trepidation. By adding *chloric ether* these advantages are increased, and the combination often affords most striking relief. The lady whose case is related at page 72, is an instance of this; her groundless fears were at once dispelled by drachm doses of ammonia and chloric ether. The inhalation of eau de Cologne sometimes affords relief by its strong stimulant action. *Alcohol* proverbially "gladdens man's heart," but its action on the spirits is so complicated by other effects, that I refrain from prescribing it, except in urgent cases and in moderate doses, to relieve local conditions of the stomach, or to procure sleep. *Camphor* has a soothing action upon the system generally, and especially upon the nerves of organic life. It may be taken internally to effect this, or it may be used externally, either to the epigastrium or the generative organs. In exhaustion of the solar plexus, with faintness at the epigastrium, the use of a camphorated poultice, a camphor bag worn next the skin, or a camphorated plaster are useful adjuncts to treatment. Camphor is well known to soothe pain in the generative organs, and this is *prima facie* evidence that other conditions depending on nervous irritation there will also be relieved. Baths containing camphor I have found to have a useful influence over the nerves of the hypogastric plexus, and to relieve many of those nervous symptoms depending on irritation of the womb. While soothing, it also exhilarates when well borne by the stomach, and often removes the

horrible sense of want or faintness accompanied by fear, which is referred to the epigastrium.

The effect of a moderate dose of alcohol (whisky) at bed-time is most grateful to an anxious over-worked patient; he often experiences a comfortable or happy sensation, in place of the depressing emotion which in spite of himself, has previously possessed him; passes a night of quiet sleep, and instead of awaking in a depressed state, with a dry tongue coated with viscid mucus, he awakes with a moist clean tongue, and is refreshed and strengthened for the duties of the day. All this can be produced by alcohol without the slightest deleterious result. You get the stimulant without any succeeding narcotic effect.

Aromatics are also of use in these diseases; an aromatic tincture like that of cardamoms (I have shown) will, by relieving flatulent distension of the stomach, remove the excited and distressing feelings of a nervous patient; the distressing feeling being doubtless due to the pressure of the distended stomach on the ganglionic system of nerves. Cardamoms, lavender, nutmeg, cloves, cinnamom, &c., are all of this class, but their action is feeble unless they are given in strong concentrated doses. Naphta acting partly as a stimulant and carminative, is so far a medicine of this class.

Antispamodics are medicines which relieve depression of spirits. They often rouse a patient from a course of mental depression, and remove nervous excitability such as constitutes hysteria in women, and weeping hypochondriasis in men. In all cases of

emotional disorder, one great feature in their pathology is that the controlling power of the will is diminished, for the emotional tendencies are increased very much in proportion as the volitional power is diminished. So true is this that many hold the absence of voluntary power to be the cause of emotional excess, as if the emotions could only act when the will is consenting or too weak to repress the feelings; in other words, that the presence or manifestation of emotion is *pro tanto* absence of volition. We feel that such a view is too strong, and discarding the idea of emotion being an entity gives it a negative rather than a positive existence. For practical purposes our view is best, and upon its basis we would say that nervine tonics, alteratives, and stimulants, not only increase volitional power, but also render the nervous system a more ready and better fitted medium or vehicle for the production and transmission of healthy and happy emotions, as opposed to the functional disorder of it which predisposes it to unhealthy emotional excitement.

The *fœtid gums* rank high as medicines of this class; and whether we regard their power to dispel flatulence, to remove spasm, or to correct the nervous disorders of organic life, we find reason why they should influence our emotional system, for we have seen that all these—flatulence, spasm, and disorder of the ganglionic system—bear a close relation to the state of the emotions. From their action we gather, that whatever preserves or restores the healthy action of the visceral system of nerves, will also tend to preserve

and restore a healthy condition of the emotional part of our mental system.

The compound galbanum pill is an excellent remedy for sinking at the epigastrium, accompanied by depression of spirits. The efficacy of galbanum is very much aided by the other gums, especially by the myrrh contained in the pill. The use of myrrh as an adjunct in these cases is sometimes very striking; whether this is due to cleansing of the gastric mucous membrane or some more specific influence I do not know; but my observations in the case of the above pill, and in the case of preparations of iron combined with myrrh, convince me fully that it materially aids these drugs in relieving nervous conditions of the intestinal canal. It seems scarcely necessary to say that asafœtida is one of the most powerful of anti-spasmodic medicines. Its reputation in hysteria speaks sufficiently for the action of the drug on the emotions without further comment. Its combination with ammonia and spirit in spt. ammon. fœtid. is a most useful form for administration.

Valerian is also a strong nervine stimulant; it seems to act like a true stimulant; for by relieving abnormal excitement on the one hand, and dispelling morbid depression on the other, it often restores healthy action.

Castor, musk, sumbul, and various other products of animal and vegetable life, doubtless owe their efficacy in so called nervous diseases or "spinal complaints (?)," to the influence of these drugs on the nerves of organic life.

Less stimulating than these, we have some in-organic

substances which also relieve nervous disorder. *Sulphur* given in small doses (ten grs.) and repeated as often as possible without purging, is a splendid remedy in some cases. Its use is indicated where the *uterine* system of nerves is at fault. It is useful in cases of prolapsus uteri with torpor of the secretions, and at the change of life, when the bowels are sluggish and the cutaneous functions irregular; it restrains the excessive flushing of that "period" by promoting a more general activity of the cutaneous glands and of the secretions generally. Doubtless much of its action is due to these eliminating properties which it possesses, but in addition, it seems to have a special action on the nerves of organic life when *they* are out of order.

Of a more tonic nature, we often use arsenic, as possessing a specific influence over all parts of the nervous system. Hitherto my observation of its effects is not sufficiently decisive to enable me to say much of any special effect it may have in these diseases apart from its *general* alterative and tonic powers.

The nitro-muriatic acid, by its beautiful combination of properties as stomachic alterative and tonic, is of immense use in those cases of emotional disorder depending on weak digestion. It is borne by the stomach when other tonics would be rejected, may be given when the tongue is coated; and undoubtedly combines the power to aid digestion and promote a flow of bile, with its more general tonic properties. Of its use, when given about two hours after meals, while the weak stomach is laboring to finish digestion, I have

had many convincing proofs; and as we have seen this to be a period when the accession of emotional distress is very common, we accordingly find the relief afforded to the process of digestion is accompanied by the removal of emotional distress.

Taraxacum and other drugs having a mild action on the liver, *pro tanto*, relieve depression depending on disorder of that organ.

Gout is one of the most striking of the conditions which predispose to depression of spirits; and this is most apparent when the gout is suppressed or latent in the system, before an acute attack. For such cases colchicum, alkalis, a proper regimen, and other means for eliminating uric acid are to be had recourse to and fairly tried.

TONICS.

Iron is useful in cases of anæmia with weakness of the nervous system such as occur in weak women who suckle their children too long, and in the case of those whose minds have been anxious or disturbed during their parturient period. These often suffer from relaxation of parts, with discharges of blood or mucus from the vagina, or uterus, or rectum, and they are benefited by the more astringent preparations, such as the muriated tincture or sulphate of iron. In others the mind is agitated by fears, and the attention is concentrated upon slight bodily ailments till alarm is taken, and where the attendant excitement of the arterial system leads to pulsation in the abdominal aorta, the attention is directed to this, and the patient

becomes convinced there is a serious disease in it. In these cases no remedy acts like the mist. ferri. co. (Griffiths); it answers all the indications, improves the blood, removes the arterial excitement, and relieves emotional distress. I have known abdominal pulsation which had resisted almost every other remedy, to yield in a few days to this admirable mixture. As before said, its myrrh, &c., &c., undoubtedly aid its action most materially.

Nux vomica ranks high among these remedies; it improves digestion, and in conjunction with aloes restores the action of a sluggish colon; conditions which, as we have seen, are closely related to several kinds of emotional disorder. In addition to these properties, it has its more specific action on the nervous system, giving tone and strength, and materially improving its condition. I often combine it with the galbanum pill, with iron, or with aloes, according to the indications present; or I give its alkaloid strychnia with quinine or iron, when the nervous system is essentially weak and exhausted.

Quinine is useful in restoring the tone of an exhausted solar plexus, but we must take great care that the weak stomach is not otherwise disordered. By omitting this precaution, I have seen emotional distress seriously increased by quinine, and I cannot say that I have in any case seen that benefit from it which we should expect from its physiological action on the nervous system.

The Salts of Silver are highly spoken of in these affections by some (see Johnson on Indigestion). I

have given the oxide and nitrate of silver a fair trial, and I have seen those conditions of emotional disturbance which are accompanied by chronic irritation of the intestinal nerves, decidedly benefited by both. While tonifying, the nitrate of silver seems to diminish the morbid sensitiveness of the sympathetic nerves and the exquisite sympathy thus established between them and emotion. A good long course is often necessary; but it must not be so long as to endanger the patient's complexion.

Zinc gives considerable promise of usefulness in these cases. The long established reputation of sulphate of zinc in epilepsy and chorea as nervous diseases, and of the oxide of zinc in ovarian and uterine affections, indicates in them the properties required in affections of the uterine system of nerves accompanied by emotional disturbance. They are tonics and alteratives in these affections, and under their influence the nervous disorders which occur at the change of life are often relieved and cured. Where there is excitement at all partaking of a hysterical nature, the *valerianate* of zinc is indicated. The carbonate of zinc also acts well in cases where nervousness is present; its action in the craving exhaustion, with nervous excitement or depression, which occurs in the subjects of chronic alcoholic intoxication, has been carefully investigated by Marcet, and I think there can be no doubt of its curative effects. It was from the data supplied by the above investigator that I was led to administer it in nervousness (not alcoholic) of this type, and I have to report favorably of it as far as I have gone.

Phosphorus.—I have no experience of the action of *phosphorus* in these cases.

LOCAL APPLICATIONS.

We have already spoken of the good effects of camphor in certain cases. Let me add that a camphorated starch poultice to the epigastrium often relieves a paroxysm marked by sinking at the pit and nervous depression. A camphorated plaster also seems to have a good influence on the subjacent ganglia. Better still is a good dusting of powdered camphor over a surface reddened by a mustard blister. Here I would advert to the excellent effects of counter-irritation to the epigastrium. Of counter-irritants, mustard is the best where the nervousness comes on in paroxysms at bedtime, and is accompanied by loss of sleep: the dusting of camphor is a useful adjunct to the blister. When the nervousness is continuous or chronic, a crop of pustules from a croton oil liniment is the best form of counter-irritation. Lastly, when the irritability of the nerves beneath seems to be severe, I find a fly blister to be necessary, and over the raw surface we are at liberty to dust a grain or two of morphia to procure relief.

COLD APPLICATIONS.

There are many cases where we do not want a local counter-irritation, but a reaction on the surface over the disturbed nervous centre; and this reaction must of course follow a shock of cold more or less severe. Cases marked by a feeling of exhaustion at the epigas-

trium, cases of matutinal depression, and many cases of extreme nervous excitement belong to this category. I use chiefly a cold water compress worn over the abdomen for half an hour night and morning, and at any time when the symptoms are severe. At first there is the shock, and in a few minutes the reaction. I can truly say that I have relieved and cured many bad cases by this treatment. In practice, the readiest plan is to make the patient wear an ordinary folded towel covered with gutta percha; the most effectual plan is the packing with cover, such as is used at hydropathic institutions. The physiological action of this remedy will be at once apparent; for by it we have cold and heat, two of our chief agents in influencing the vasor motor centres, by which not only the nervous system, but circulation and secretion, are brought into a healthy state. I have procured sleep nightly by this compress in a very severe case which resisted all other means used to still the *excitement of the nerves.* If there be palpitation in such cases, it will be allayed. Ice may be applied in some cases where the subjacent irritation is very severe. The compress seems at once to soothe and to invigorate the disturbed and weakened solar plexus on which it acts.

A few remarks about the situation to which these compresses are to be applied may not be out of place. I have ascertained that the solar plexus and its ganglia lie chiefly beneath the tip of the ensiform cartilage, therefore we must always keep our applications above the umbilicus. This region of the sternal angle is the most sensitive spot to shocks or blows in the whole

body; it will bear gradual pressure well, but a slight tap causes the person to flinch and to feel a sense of timidity or alarm, and a severe blow has often proved fatal by the shock conveyed to the solar plexus. These facts are pregnant with interesting arguments in favor of the theory of our article; at present, however, we will only draw from them one or two hints for treatment. Nature seems to have left this spot sensitive (to shocks), in order to protect the tender and delicate mass of nervous mechanism beneath, and she thereby hints that, to influence these parts, our applications are to be made, not to the spine, not to the abdomen, but to the pit of the stomach. I believe that if those gentlemen who treat disease by applications to the spine would direct their attention to this spot also they would get good results; for doubtless the play of nerves on blood vessels, and through them on secretion, can be influenced by the applications we make here. I must hasten on to say that the cold douche, and the dashing of water against the epigastrium in the morning bath (a custom never to be neglected by these patients) are useful measures. Galvanism, and even electric shocks through to the spine, are useful in some cases, but my experience of these is small. Pulvermacher's chain answers the purpose for a continuous current.

The effect of general sea-bathing in these cases is too well known to need any comment.

The cold sheet is useful; but I prefer the use of the warm bath or hot-air bath to eliminate by the skin and to soothe the nervous system. They should be used regularly twice a week.

In the nervous excitement of young men, who have exhausted their nervous system by dissipation, sponging at night with warm water acts like a charm in procuring a good night's repose.

SUMMARY.

PROPOSITION I.—The emotions injure the body most commonly by their effects upon the viscera, through the sympathetic system of nerves.

Proved.—a. By comparing the action of emotion on blood-vessels, non-striped muscle, and glands in *external* parts, with the established functions of the sympathetic nerves supplied to these parts, the two are found to be identical.

b. Effects which cannot be produced by volition or cerebro-spinal nerves in these parts, are easily produced by emotion and sympathetic nerves; therefore emotion acts on these parts through the sympathetic system.

c. Symptoms occur during the prevalence of strong emotion which indicate alterations in the internal viscera similar to those which occur in external parts, viz., changes in the vascularity, secretions, and muscular actions of those viscera which are largely supplied by sympathetic nerves; therefore, from the nature of the effects produced, and from the relation of the parts acted on to the sympathetic system, it appears that emotion acts on these parts through the sympathetic system.

PROPOSITION II.—There are disordered states of the viscera which powerfully induce those emotions which

are injurious to the body; these effects are produced through simultaneous disorder of the sympathetic system.

Proved.—a. There are always, accompanying depression of spirits, symptoms which depend upon disordered action of the sympathetic system, *e. g.*, "the flushings of the change of life."

b. Morbid emotional sensations are always felt in those regions where the great sympathetic centres lie.

c. The capability of a diseased organ to excite these emotions is in proportion to its supply of nerves from the sympathetic system.

d. Treatment which addresses itself to the sympathetic system, and seeks to relieve it, (*e. g.*, the solar application of compresses on the site of the plexus) is undoubtly successful in dispelling morbid emotion.

e. The above sequence of events cannot be accounted for by disturbance of the cerebro-spinal system only; we are therefore driven to the conclusion that, as the medium of communication between the cerebro-spinal system and the viscera, the sympathetic system also becomes the tract through which emotion finds its way to the viscera; and, conversely, it is the channel by which the viscera influence the emotions. When the sympathetic system itself is out of order the emotions suffer with it.

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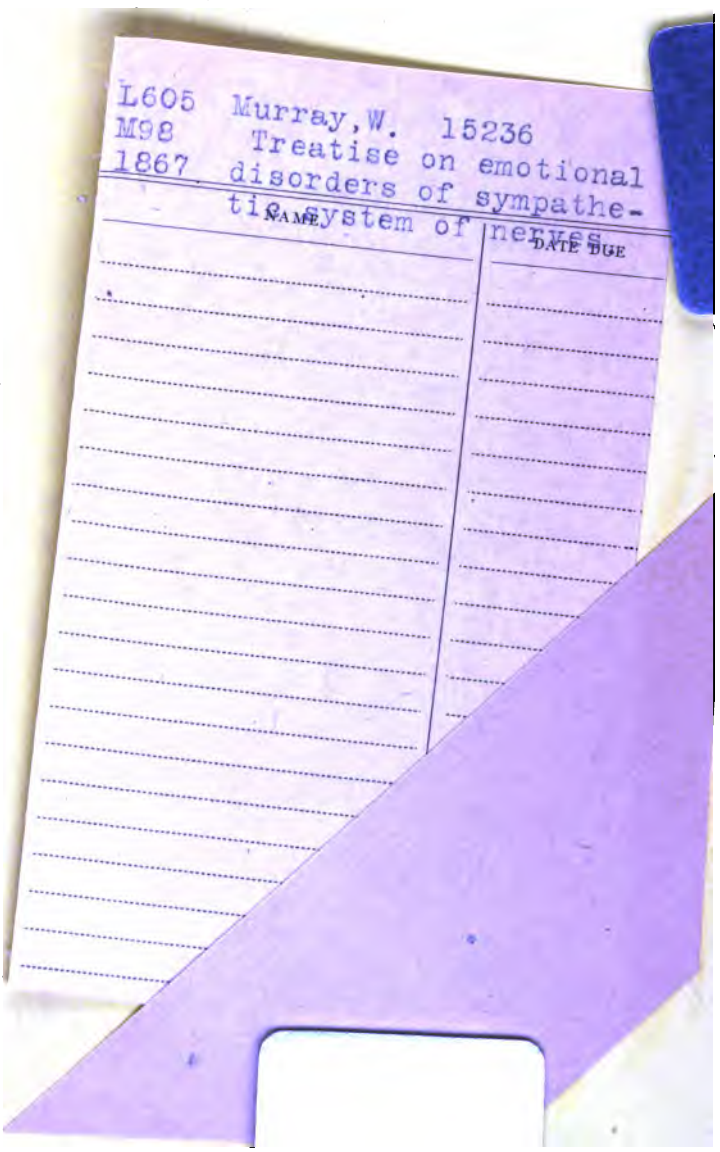
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